2020

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This paper was originally published by the Rocky Mountain Mineral Law Foundation in the
Proceedings of the 66th Annual Rocky Mountain Mineral Law Institute (2020)

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CRYSTAL GAZING: FORETELLING THE NEXT DECADE IN OIL AND GAS LAW

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§ 5.01 Introduction*

"Prophecy is a good line of business, but it is full of risks."

—Mark Twain[1]

So, too, with the oil business. This chapter attempts to predict the major issues oil and gas law will encounter in the coming decade. Yet even before the first draft could be completed, the industry landscape changed unexpectedly. As this chapter goes to press, the global and domestic economies are just starting to emerge from a sharp downturn brought on by the outbreak of COVID-19. Oil and natural gas prices collapsed to levels not seen in decades. Against this unforeseen backdrop, the legal changes facing oil and gas development in the United States look somewhat different. But one element of our new reality is consistent with this chapter's prognostications: the future of oil and gas exploration and production looks precarious.

*Cite as Joseph A. Schremmer, "Crystal Gazing: Foretelling the Next Decade in Oil and Gas Law," 66 *Rocky Mt. Min. L. Inst.* 5-1 (2020).

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[1] Mark Twain, *Following the Equator: A Journey Around the World* 89 (1897).

The idea for this chapter came from Drew Cloutier of Hinkle Shanor LLP in Roswell, New Mexico, and Kevin Abbott of the Law Office of Kevin Abbott and the University of Pittsburgh School of Law. With the help of Alex Ritchie, Executive Director of the Rocky Mountain Mineral Law Foundation, we surveyed oil and gas law professors around the country to solicit predictions about legal issues likely to predominate the next 10 years.[2]

The predictions received, along with some of my own, are organized into six topics:

(1) pore space and injection rights and liabilities (§ 5.02);

(2) ownership rights and liabilities in produced water (§ 5.03);

(3) competing surface uses in a changing statutory and energy landscape (§ 5.04);

(4) the shifting focus of conservation law from waste and correlative rights to environmental regulation (§ 5.05);

(5) takings issues brought about by changes in property rights and conservation regulation (§ 5.06); and

(6) the effects of the COVID-19 crisis on oil and gas leases (§ 5.07).

For each topic, the chapter will describe the likely issues, synthesize their relevant precedent and scholarship, and propose an analytical framework for their resolution. In so doing, the chapter will attempt to identify themes and connect the issues to their property, contract, and tort underpinnings. So that blame may be allocated appropriately, please take note that the below organization and analysis are my own, as are any and all errors, heresies, provocations, and risks of future inaccuracy.

§ 5.02 Pore Space and Injection Rights and Liabilities

[1] Introduction

The leading topic likely to dominate the 2020s, as identified by those surveyed, is pore space and injection rights and liabilities. The particular issues identified include property rights for subsurface storage of water and carbon dioxide (CO_2), whether royalty or other compensation may be due for injecting CO_2 in the oil and gas production process, and liability for frac hits and other subsurface interferences. Professor David Pierce's submission neatly summarizes the broader topic as "[d]efining with

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[2] My thanks to the following professors and practitioners who submitted predictions (in alphabetical order): Kevin Abbott, Owen Anderson, Drew Cloutier, Burke Griggs, Keith Hall, Bill Keffer, John Lowe, David Pierce, and Freddy Sourgens.

greater precision rights of owners in subsurface rock structures that are connected."[3]

Pore space rights is not a new topic. Over the last decade, technological advancements have enabled novel uses of reservoir storage space, including aquifer storage and recovery (ASR),[4] compressed air energy storage (CAES),[5] and carbon capture and sequestration (CCS).[6] Developments in drilling and production techniques, such as horizontal drilling, multi-stage hydraulic fracturing, and CO_2 flooding for enhanced oil recovery (EOR), also led to new kinds of property disputes over the permissible use of common reservoirs.[7]

As the survey takers pointed out, important issues remain underdeveloped here. Broadly, the topic has two dimensions: (1) in split estate land, who owns rights in pore space as between surface and mineral owners;[8] and (2) what entitlements come with this ownership?[9]

Although the first dimension—who owns the pore space—is not settled everywhere, many state legislatures and courts have taken a clear stance,[10] with the majority placing pore space ownership in the surface estate, subject to the severed mineral estate's implied easement for surface use.[11]

The second dimension, then—the rights and liabilities that arise from ownership—provides the open questions that survey responses identified. As parties use pore space for more, and more intensive, purposes, new types of disputes will continue to proliferate. Surface and mineral owners in split estates will vie for priority in using shared pore space. Lessees and

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[3]Email from David Pierce to Alex Ritchie (Nov. 6, 2019) (on file with author).

[4]ASR is used to store freshwater underground, which is later recovered for use.

[5]CAES is a way to store energy generated by renewable resources using compressed air injected underground.

[6]Joseph A. Schremmer, "Getting Past Possession: Subsurface Property Disputes as Nuisances," 95 *Wash. L. Rev.* 315, 321–22 (2020).

[7]*E.g.*, Coastal Oil & Gas Corp. v. Garza Energy Tr., 268 S.W.3d 1 (Tex. 2008) (deciding dispute over alleged trespass to plaintiff's mineral estate by offset operator's frac fissures); Lightning Oil Co. v. Anadarko E&P Onshore, LLC, 520 S.W.3d 39 (Tex. 2017) (deciding dispute over alleged trespass to plaintiff's mineral estate by offset operator's horizontal wellbores).

[8]For a discussion of this first dimension, see generally Owen L. Anderson, "Geologic CO_2 Sequestration: Who Owns the Pore Space?" 9 *Wyo. L. Rev.* 97 (2009).

[9]*See* Joseph A. Schremmer, "Pore Space Property," 2021 *Utah L. Rev.* (forthcoming 2021).

[10]Professor Righetti surveys how courts and legislatures have allocated pore space rights in Tara K. Righetti, "Correlative Rights and Limited Common Property in the Pore Space: A Response to the Challenge of Subsurface Trespass in Carbon Capture and Sequestration," 47 *Envtl. L. Rep. News & Analysis* 10420, 10424–27 (2017).

[11]*Id.*

lessors will bicker over compensation for use. And pore space owners in common reservoirs will clash when subsurface activities cross property lines. In evaluating this second dimension, it is necessary to consider rights and liabilities both as between owners of split estates and as among neighbors in common reservoirs spanning multiple parcels.

The following discussion considers both of these aspects. Section 5.02[2] discusses pore space rights and liabilities as between the owners of split estate land, starting with situations where the mineral estate owns the pore space, and then discussing situations where the surface estate owns the pore space, paying particular attention to whether a mineral owner or lessee may use pore space to store water or CO_2, and to whether the mineral owner or lessee owes compensation or royalty for doing so. Section 5.02[3] considers the rights and liabilities among pore space owners in neighboring tracts, focusing on liability for subsurface invasions and overuse of pore space and on title to injected substances among such owners.

[2] Pore Space Rights and Liabilities Between Split Surface and Mineral Estates

[a] Where the Mineral Estate Owns the Pore Space

A small handful of courts appear to have held that the severed mineral estate includes ownership of the pore space, both before and after it is saturated with hydrocarbons.[12] These decisions, however, are of limited authority, and it is doubtful that any jurisdictions fully embrace this position.[13] Although it is probably quite unusual, private parties in most states may vest pore space ownership in a severed mineral estate by deed. Where the severed mineral estate includes the pore space, the mineral estate alone enjoys the right to use the pore space as between the split estates for any purpose, including storage of CO_2 and fresh and produced water. By virtue of its implied surface easement, the mineral estate would have the right to access and use the surface of the land to conduct any pore space activity, regardless of whether it is necessary to develop underlying hydrocarbons.

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[12] *E.g.*, City of Kenai v. Cook Inlet Nat. Gas Storage Alaska, LLC, 373 P.3d 473, 480–81 (Alaska 2016) (basing its conclusion on interpretation of a unique state statute); Hammonds v. Cent. Ky. Nat. Gas Co., 75 S.W.2d 204 (Ky. Ct. App. 1934). It is unclear whether *Hammonds* remains good law on this point, as it was apparently overruled in *Texas American Energy Corp. v. Citizens Fidelity Bank & Trust Co.*, 736 S.W.2d 25, 75 (Ky. 1987).

[13] *See* Barry Barton, "The Common Law of Subsurface Activity: General Principle and Current Problems," in *The Law of Energy Underground: Understanding New Developments in Subsurface Production, Transmission, and Storage* 22–33 (Donald N. Zillman et al. eds., 2014).

Thus, there should be few issues, in these relatively rare situations, that cannot be resolved by existing surface-use principles.[14]

[b] Where the Surface Estate Owns the Pore Space

In most instances, pore space is part of the surface in split estate land. In such land, the severed mineral estate enjoys an implied easement to use and consume the surface only for purposes of developing the underlying minerals. In most states, therefore, mineral and surface owners share the underlying pore space to some extent and disputes over the extent of each estate's rights are practically guaranteed. To date, however, few disputes have resulted in reported decisions.

The leading case thus far is *Lightning Oil Co. v. Anadarko E&P Onshore, LLC*.[15] Lightning Oil Co. (Lightning) held the oil and gas lease on the Briscoe Ranch and Anadarko E&P Onshore, LLC (Anadarko) owned the oil and gas lease on neighboring state lands. Anadarko's lease limited use of the overlying surface for development, so Anadarko acquired a surface lease from the owner of the Briscoe Ranch's surface estate. Anadarko's surface lease permitted it to drill a number[16] of horizontal wellbores from a surface location on the Ranch to access the reservoir underlying Anadarko's oil and gas lease. Although these wellbores would not capture any minerals under the Ranch, Lightning sued claiming the wellbores would constitute a trespass of Lightning's mineral estate and tortious interference with its oil and gas lease.

On appeal of summary judgment in favor of Anadarko, the Texas Supreme Court considered the extent of each estate's pore space rights—in this case, for purposes of drilling horizontally to access an offset mineral estate.[17] The court first considered whether the mere presence of Anadarko's boreholes through the premises of Lightning's oil and gas lease would trespass its mineral estate.[18]

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[14]For a discussion of these principles, see generally Bruce M. Kramer, "The Legal Framework for Analyzing Multiple Surface Use Issues," 44 *Rocky Mt. Min. L. Fdn. J.* 273 (2007).

[15]520 S.W.3d 39 (Tex. 2017). Several cases arising from Louisiana in the 1980s address the relationship between surface and mineral owners in allocating compensation for the condemnation of pore space for storage of natural gas. These cases are consistent with the general principles articulated in *Lightning Oil*, namely that the surface owner controls the pore space itself while the mineral owner's interest is only in the oil and gas in place. *See, e.g.*, Nat. Gas Co. v. Sutton, 406 So. 2d 669 (La. Ct. App. 1981); Miss. River Transmission Corp. v. Tabor, 757 F.2d 662 (5th Cir. 1985).

[16]The precise number was disputed. *Lightning Oil*, 520 S.W.3d at 43.

[17]*Id.*

[18]*Id.* at 46.

It concluded that the surface estate owns the geological structures beneath the earth's surface as well as the "reservoir storage space,"[19] and the mineral estate owns only "a fair chance to recover the oil and gas in place or under" the surface of the earth.[20] To exercise its fair chance at recovery of minerals, the owner or lessee of the mineral estate is permitted to make certain use of the surface. In this sense, the mineral estate is dominant, and the surface is servient, even though "the rights of a surface owner are in many ways more extensive than those of the mineral lessee."[21]

The mineral estate's rights include the right to develop, lease, receive bonus payments, receive delay rentals, and receive royalty payments, but *not* the right to possess the specific place where the minerals are located.[22] Thus, the court explained, "an unauthorized interference with the *place* where the minerals are located constitutes a trespass as to the mineral estate only if the interference infringes on the mineral lessee's ability to exercise its rights."[23]

Applying that standard, the court held that Lightning failed to establish a trespass, because it could only speculate that Anadarko's proposed wells would interfere with the surface and subsurface spaces necessary for Lightning to develop the minerals in the future.[24] The question remained, however, whether the horizontal drilling process would interfere with Lightning's ability to recover the minerals by destroying earth that may contain some quantum of minerals.

To answer this question, the court resorted to balancing the interests of the parties, of the larger oil and gas industry, and of society as a whole. Finding that horizontal drilling from off-lease locations promotes efficient reservoir development and Lightning's loss of minerals would be small (approximately the amount contained in 15 cubic yards of earth), the court held that the loss of minerals would "be a non-actionable interference" with Lightning's property rights.[25]

The court further noted that the accommodation doctrine would provide a " 'sound and workable basis for resolving conflicts' between owners

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[19] *Id.* at 47–48 (quoting Humble Oil & Ref. Co. v. West, 508 S.W.2d 812, 815 (Tex. 1974)).

[20] *Id.* at 47 (quoting Coastal Oil & Gas Corp. v. Garza Energy Tr., 268 S.W.3d 1, 15 (Tex. 2008)).

[21] *Id.* at 48.

[22] *Id.* at 49. Notwithstanding the court's characterization of the nature of the mineral interest, the court describes an interest in the minerals themselves, as opposed to the place where they are located, as being a possessory interest. *Id.* at 48.

[23] *Id.* at 49.

[24] *Id.*

[25] *Id.* at 51.

of mineral and surface estates" that arise over use of those portions of the surface estate that exist underground, such as the geological strata and pore space of reservoirs.[26] The court did not apply this doctrine, however, because the parties did not raise it.

Lightning Oil clarifies at least four aspects of pore space rights: (1) the geological strata and pore space of reservoirs is surface-estate property; (2) the mineral estate owns only a "fair chance" to recover minerals existing within the geological strata and pore space; (3) the mineral estate's rights include the right to use parts of the surface estate to recover mineral; and (4) when the rights of surface and mineral estate owners clash, priority will be resolved under the same principles that govern surface use, including the doctrine of dominant and servient estates and, in Texas, the accommodation doctrine.

[i] May a Mineral Owner or Lessee Use Pore Space to Store Water or Carbon Dioxide?

In general, a mineral estate owner enjoys an implied easement to use elements of the surface estate as is reasonably necessary to access and develop the underlying minerals.[27] The implied right to use the surface includes the right to *consume* elements of the surface estate.[28] Following *Lightning Oil*, it is clear that pore space is one element of the surface estate. Use of pore space for injection of fluid for storage and disposal is like "consuming" other elements of the surface estate, such as freshwater, sand, gravel, and clay.[29]

The mineral estate's right to consume the surface estate is traditionally limited by two principles. First, the use or consumption must be reasonably necessary to access and develop the mineral estate. Second, the use or consumption must benefit exclusively the dominant mineral estate.[30] For example, in *B.L. McFarland Drilling Contractor v. Connell*, a panel of the Texas Court of Civil Appeals held that it was no trespass of W.N. Connell's surface estate for B.L. McFarland Drilling Contractor (McFarland), an oil and gas lessee, to use a reasonable amount of caliche from the lease premises to construct roads, drill sites, and tank batteries to operate the

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[26] *Id.* at 50 (quoting Coyote Lake Ranch, LLC v. City of Lubbock, 498 S.W.3d 53, 63 (Tex. 2016)).

[27] Sun Oil Co. v. Whitaker, 483 S.W.2d 808, 810–11 (Tex. 1972).

[28] Ricks Expl. Co. v. Okla. Water Res. Bd., 695 P.2d 498, 503 (Okla. 1984).

[29] *See* Schremmer, "Pore Space Property," *supra* note 9 (comparing pore space to groundwater).

[30] B.L. McFarland Drilling Contractor v. Connell, 344 S.W.2d 493, 497 (Tex. Civ. App. 1961).

lease.[31] The court reasoned that the caliche was property of the surface estate and that McFarland was justified in using a reasonable amount in the exercise of its right to use the surface of the land to develop the underlying minerals.[32]

While the mineral owner may consume such elements of the surface as are reasonably necessary to access and develop the mineral estate, including reservoir pore space, the mineral owner generally does not have the right to store natural gas under the surface.[33] This follows from the two limiting principles noted above, because natural gas storage generally is not necessary to develop the underlying mineral estate.

Where the mineral estate is leased, the rights of the lessee to access and use the surface estate are generally coextensive with the rights of a severed mineral owner, unless limited in some way by express language in the lease.[34] Thus, where the lessor owns only a severed mineral interest, the mineral lessee's rights are limited by the principles described above. A lessor that owns a surface interest as well as a mineral interest, in contrast, has the power to convey greater surface-use rights to the lessee by specifically including them in the grant of the lease.

Under these principles, may a severed mineral estate owner or lessee inject water or CO_2 into the underlying pore space for storage? Say it with me, lawyers and law students: "It depends." Applying the "consumption" analogy, a mineral owner or lessee may use reservoir storage space for water or CO_2 if and to the extent that it is reasonably necessary to develop exclusively the underlying mineral estate. For example, a lessee may drill and operate a saltwater disposal well on the surface of the lease to dispose of salt water produced from the lease, but not salt water produced from other lands.[35] Thus, injection and storage of fresh and produced water would be permissible only if the water is used in drilling, completion, or production or disposal operations conducted on the same lease.

Likewise, a lessee may inject and sequester CO_2 if it is incidental to EOR conducted on the same lease (or leases with which the same lease is pooled or unitized), just as it may inject and sequester salt water to waterflood the

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31 *Id.* at 495–97.

32 *Id.* at 497.

33 Anderson, "Who Owns the Pore Space?" *supra* note 8, at 118.

34 David E. Pierce, "Oil & Gas Easements," 33 *Energy & Min. L. Inst.* 9, § 9.03[2] (2012).

35 Dick Props., LLC v. Paul H. Bowman Tr., 221 P.3d 618, Syl. ¶ 4 (Kan. Ct. App. 2010); Leger v. Petroleum Eng'rs, Inc., 499 So. 2d 953, 955–56 (La. Ct. App. 1986).

lease without compensating the surface owner.[36] CO_2 sequestration that is not incidental to EOR or reasonably necessary for oil and gas production, on the other hand, would exceed the scope of the implied surface easement. Lessees that want the right to store CO_2, water, or other substances for non-lease purposes must acquire that right from the surface owner by contract or conveyance.

[ii] Does a Mineral Owner or Lessee Owe Compensation or Royalty for Pore Space Storage?

More and more, there is money in storing CO_2 and produced, treated, recycled, and freshwater underground. CO_2 sequestration, both by direct storage and incidental to CO_2 EOR, is eligible for a federal investment tax credit.[37] In some states, like New Mexico and Texas, which are dealing with rapidly growing volumes of produced water, markets are likely to develop for use of produced and recycled water within and outside of the oil patch.[38] The possibility that a mineral owner or lessee may profit from injecting valuable substances for pore space storage, or from selling injected substances, raises the issue of who is entitled to share in the income generated by such activities.

Suppose that *A* owns the severed mineral interest in Blackacre, and leases the interest to *B* under a typical oil and gas lease. Then *B* unitizes the lease with other lands to conduct CO_2 EOR. The only injection well is located on the surface of Blackacre, which is owned by *C*. In addition to revenue from the sale of oil produced from the unit, *B* qualifies for $100,000 in the form of an investment tax credit from the federal government for permanently sequestering CO_2 in the subsurface incidental to the EOR operation. As among *A*, *B*, and *C*, who is entitled to share in the $100,000 tax credit, and in what proportions?

If the CO_2 EOR operation is reasonably necessary to produce the minerals underlying *C*'s surface estate and exclusively benefits that tract and tracts with which it is validly unitized, *B*, by virtue of its surface-use easement, is entitled to conduct the operation without liability to *C*. Though the CO_2 is sequestered in pore space owned by *C*, *C* is entitled to compensation only if it can show that *B*'s operations were excessive or negligent, or if it is required by an applicable surface damage act.

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[36] *Cf.* Holt v. Sw. Antioch Sand Unit, 292 P.2d 998, Syl. ¶ 2 (Okla. 1955) (permitting injection of salt water into lease premises to conduct a waterflood).

[37] 26 U.S.C. § 45Q.

[38] *See generally* Keith Burron & Gage Hart Zobell, "How Industry and Regulators Are Responding to Challenges and Opportunities in Management, Reuse, and Beneficial Use of Produced Water," 63 *Rocky Mt. Min. L. Inst.* 12-1 (2017).

Conceptually, surface damage acts should apply to use of subsurface storage capacity in states where the subsurface strata and pore space are elements of the surface estate. Practically, any statute's application will depend on its particular terms, which may limit its effect to activities taken on the actual surface of the earth, rather than any element of the legal surface estate. Most surface damage statutes do not specifically address subsurface damage, and at least North Dakota's statute specifically excludes pore space from its definition of land.[39]

Under its oil and gas lease with *B*, *A* might claim a royalty on the injected and sequestered CO_2 based on the value of the tax credit *B* received. A similar claim was made, without the element of a tax credit, in *Occidental Permian Ltd. v. Helen Jones Foundation*.[40] There a panel of the Texas Court of Appeals held that when a lease operator injects extraneous CO_2 for EOR, courts presume the operator did not intend to abandon the CO_2. Consequently, when the operator produces the injected CO_2, it is not subject to the rule of capture and therefore not covered under the lease royalty obligation.[41]

Moreover, since most oil and gas leases do not expressly reserve a royalty on extraneous CO_2 injected for EOR or sequestration, and probably very few, if any, require payment of a portion of investment tax credits received for sequestering CO_2, lessees will argue that no royalty is due under the lease's express terms. Other interpretation issues are also likely to preclude *A*'s claim for royalties, such as whether receipt of a tax credit constitutes a "sale" or "use" of production, or comprises any part of the price of production, to which the royalty clause applies.[42] Additionally, under market-value leases, proceeds from the sale of CO_2 or an investment tax credit would not affect the market value of oil or gas production from the lease, and therefore would not be properly subject to the royalty obligation.[43]

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[39] *E.g.*, Wyo. Stat. Ann. § 30-5-405; Mont. Code Ann. § 82-10-502(2); N.D. Cent. Code § 38-11.1-03.

[40] 333 S.W.3d 392 (Tex. App. 2011).

[41] *Id.* at 409–11.

[42] *Cf.* Killam Oil Co. v. Bruni, 806 S.W.2d 264, 267–68 (Tex. App. 1991) (holding that lessors were not entitled to a royalty share of the proceeds received by lessee in settlement of take-or-pay litigation with its gas purchaser because the settlement did not constitute any part of the price paid for produced gas). *But see* Frey v. Amoco Prod. Co., 603 So. 2d 166, 182–83 (La. 1992) (adopting the minority position that lessee would have to share all economic benefits that come from having the lease, even if settlement of the take-or-pay litigation was not a "sale").

[43] *Cf.* Cimarex Energy Co. v. Chastant, 537 F. App'x 561, 565 (5th Cir. 2013) (holding that the lessee's profits from its hedging activities were not subject to the lease's market-value royalty clause because "the gains or losses on derivative trading . . . do not affect the price at the wellhead or on the lease" of oil or gas).

In sum, tax credits for injected CO_2 likely are not subject to the royalty obligation under a typical oil and gas lease, and *A*'s claim for royalty on *B*'s tax credit should fail absent express contrary language in the lease. Oil and gas lessors who want to receive royalty on payments for incidental storage of CO_2, water, or other substances will need to draft the royalty clauses of their leases accordingly.

If *B* were to later produce and sell the CO_2 it sequestered in its EOR operation, under the same principles, it should not have to share the proceeds with either *C* or *A* in the form of a royalty or compensation for pore space use. If the initial injection of the CO_2 was reasonably necessary to develop the underlying minerals, *C* should have no claim for compensation. If the lease does not include extraneous CO_2 among the substances subject to the royalty obligation, *A* should have no claim for a royalty on the sale. These principles would not, however, permit *B* to inject extraneous CO_2 into the pore space of Blackacre merely to store it for later resale, because this would not be necessary to produce the minerals in Blackacre.

[3] Pore Space Rights and Liabilities Among Neighbors

Turning to the second aspect of the extent of an owner's rights to use the pore space for various purposes, this section considers the respective rights and liabilities of neighboring owners of pore space in a common reservoir. The past decade saw a giant leap in subsurface drilling and completion technology, as well as development of novel fluid injection and storage techniques like CCS and pumped storage for renewable energy.[44] These new techniques foment property disputes among neighbors when one's subsurface activity encroaches on another's subsurface. These new uses and disputes are stretching the bounds of existing property doctrines.

There are many open questions: Does *A* have the right to drill horizontally under the property of *B*? May *C* fill an entire reservoir underlying the property of *D*, *E*, *F*, and *G* with CO_2? Has *H* violated *I*'s rights if *H* fracks a well on *H*'s property and it drains oil from underneath *I*'s? If any of these activities is allowed to proceed, is the actor liable for compensation to the other reservoir owners? Is *J* liable if the pressure from the hydraulic fracturing treatment of its horizontal well causes *K*'s nearby vertical well to blow out? This list could certainly go on.

These disputes and legal issues arise from the physical nature of reservoirs and pore space. Owing to their porosity (volume of pore space)

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[44] For a discussion of these and other advances, see generally R. Lee Gresham & Owen L. Anderson, "Legal and Commercial Models for Pore-Space Access and Use for Geologic CO_2 Sequestration," 72 *U. Pitt. L. Rev.* 701, 706–07 (2011).

and permeability (connectivity of pore spaces), reservoirs are inherently interconnected.[45] Pressure changes in one part of the reservoir affect pressures throughout the reservoir. Thus, while landowners own the portion of the reservoir underlying the surface boundaries of their land under the ad coelum doctrine,[46] they cannot physically exclude the effects of neighboring owners' activities in the reservoir. By its nature, pore space is common pool property—rivalrous, depletable, and nonexcludable among reservoir owners.[47]

[a] Liability for Subsurface Invasions and Overuse

These physical characteristics require a different legal regime than that which governs the possession and use of the surface of land. Most, but not all,[48] courts have found trespass, which imposes liability for the mere fact of a physical invasion of an exclusive property interest, to be a poor fit for protecting pore space, because it is inherently nonexcludable.[49] Instead, most courts have applied principles of nuisance law to determine subsurface interferences, despite nominally calling the tort "subsurface trespass." A famous example is *Chance v. BP Chemicals, Inc.*, where the Ohio Supreme Court affirmed dismissal of the plaintiffs' claim for trespass based on allegations that chemicals BP Chemicals, Inc., injected into disposal wells migrated into the deep saline aquifer underlying the plaintiffs' land.[50] The plaintiffs' claim failed because they could not show any interference with an existing or planned use of the subsurface formation. While courts are far from uniform in their treatment of subsurface interferences, *Chance* is fairly emblematic. There is typically no liability for subsurface invasions or overuse of reservoir capacity, except when a substance or force physically crosses subsurface property lines and interferes with another owner's preexisting subsurface activity.[51] Rights to use pore space in a common reservoir are thus established by a de facto rule of first use, and are free from uncompensated interference once established.[52]

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[45] Schremmer, "Pore Space Property," *supra* note 9.

[46] The ad coelum doctrine holds that ownership of land extends downward to the center of the earth. *Id.*

[47] *Id.*

[48] A notable case that imposed trespass liability without a showing of actual harm is *Stone v. Chesapeake Appalachia, LLC*, No. 5:12-cv-00102, 2013 WL 2097397 (N.D. W. Va. Apr. 10, 2013), *vacated*, 2013 WL 7863861 (N.D. W. Va. July 30, 2013).

[49] Schremmer, "Getting Past Possession," *supra* note 6, at 340–42.

[50] 670 N.E.2d 985 (Ohio 1996).

[51] Schremmer, "Pore Space Property," *supra* note 9.

[52] *Id.*

Likely driven by such a liberal rule, increasing use of pore space for various purposes—from injection of produced water, sequestration of CO_2, storage for renewable energy generation, storage for water, and unconventional hydrocarbon production—is increasing demand for the pore space resource. Instances of induced seismicity from over-injection of produced water and rapidly increasing pressures in reservoirs used for fluid disposal are signs that pore space capacity is becoming scarce.[53] It is predicted that future courts will address the growing pressures on pore space capacity by limiting the extent of use rights.[54] The most significant open questions are related to the extent of permissible use. How much pore space capacity in a common reservoir may an owner use? May an owner use pore space underneath the boundaries of another's land? Who holds title to valuable substances injected into the common reservoir? The following subsections attempt to address these questions.

The question of how to regulate subsurface invasions and limit use of reservoir capacity has received significant scholarly treatment. In two influential articles, Professor Owen Anderson proposed modifying trespass doctrine to deal with subsurface invasions.[55] Under Anderson's "subsurface trespass" model, a subsurface invasion that "accomplishes an important societal need, including private commercial needs," would not be enjoined, but the trespasser would be strictly liable for "actual and substantial damages" caused by the invasion.[56] Anderson rests the subsurface trespass rule on the normative grounds that subsurface owners should not suffer uncompensated damage to their existing subsurface activities, and that many socially beneficial subsurface activities, such as CCS, would not be possible if the consent of all affected reservoir owners were necessary.

Like Anderson, Professor Keith Hall has proposed a model of subsurface rights based on a modification of traditional trespass principles.[57] Hall's model would

> preclude trespass liability for subsurface intrusions of hydraulic fracturing fluids, provided that the operator did not design the fracture to go beyond the border, and the operator did not negligently cause the fractures to extend beyond the

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[53] *See id.*

[54] *Id.*

[55] Owen L. Anderson, "Subsurface 'Trespass': A Man's Subsurface Is Not His Castle," 49 *Washburn L.J.* 247, 247–51 (2010); Owen L. Anderson, "Lord Coke, The Restatement, & Modern Subsurface Trespass Law," 6 *Tex. J. of Oil Gas & Energy L.* 203, 204–07 (2010–11).

[56] Anderson, "Subsurface 'Trespass,'" *supra* note 55, at 247.

[57] Keith B. Hall, "Hydraulic Fracturing: If Fractures Cross Property Lines, Is There an Actionable Subsurface Trespass?" 54 *Nat. Resources J.* 361, 400–02 (2014).

> border for a significantly greater distance than the fractures otherwise would have in the absence of negligence.[58]

Professor David Pierce has developed an alternative theory of reservoir property rights, which he calls "reservoir community analysis," that rejects application of trespass principles to the subsurface.[59] Pierce's theory focuses on the correlative nature of reservoir rights, i.e., the reciprocal rights and duties that reservoir owners enjoy by virtue of the property's interconnectedness. Under the reservoir community analysis, a reservoir owner may have the right to use pore space anywhere in the reservoir—even underneath the land of another—to reasonably develop the hydrocarbons in the reservoir, as well as the correlative duty to countenance use of the pore space underlying its land by other reservoir owners.[60] Whether intra-reservoir invasions are permissible under the theory depends on the physical nature of the reservoir and whether the development technique used was reasonably necessary to efficiently produce the reservoir.[61]

Professor Tara Righetti has applied Pierce's analysis to the use of pore space for CCS.[62] Under Righetti's interpretation of pore space rights, an owner is entitled to use an amount of common pore space that is roughly proportional to the size of its surface tract overlying the reservoir.[63] In her proposed system, state administrative agencies would delineate owners' shares of pore space capacity and regulate its use through measures like compulsory unitization.[64]

For my part, I believe pore space rights are defined and protected by principles of nuisance law.[65] Specifically, pore space owners are entitled to *nonexclusive use* of reservoir capacity anywhere in the reservoir and for any beneficial purpose, as long as they do not interfere with others' existing activities or preclude others from having a fair opportunity to use and enjoy the reservoir for like purposes. If operations would deprive other owners of the fair opportunity to do the same, the active owner must give

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[58] *Id.* at 401.

[59] David E. Pierce, "Employing a Reservoir Community Analysis to Define and Marshal Correlative Rights in the Oil and Gas Reservoir," 76 *La. L. Rev.* 787, 804–06 (2016).

[60] David E. Pierce, "Carol Rose Comes to the Oil Patch: Modern Property Analysis Applied to Modern Reservoir Problems," 19 *Penn St. Envtl. L. Rev.* 241, 259–63 (2011).

[61] *Id.* at 259.

[62] Righetti, "Correlative Rights," *supra* note 10, at 10420.

[63] *Id.* at 10435–36.

[64] *Id.* at 10436–37.

[65] Schremmer, "Getting Past Possession," *supra* note 6, at 318–19.

the passive owners a chance to participate in the operations on fair and reasonable terms, or face liability for damages.[66]

If the attention of law professors is any indication, there will be significant development of the law in this area over the coming decade. Only time will tell how the law will develop, and which, if any, of these theories will take root in precedent.

[b] Title to Injected Substances

A final question relating to the rights and liabilities of injecting substances into the pore space of common reservoirs bears mentioning—who owns the substance itself after injection? Title to injected substances can be important in determining liability for cross-boundary invasions,[67] assigning responsibility for long-term monitoring and maintenance obligations,[68] and determining entitlement to the commercial value of the substances themselves. As noted above, one Texas appellate court has held that title to CO_2 injected for EOR remains with the injector because the CO_2 is presumed not to be abandoned.[69] Thus, the injector remains liable for cross-boundary torts and long-term monitoring, but would also have the right to resell the CO_2 for its own account.

Determining title is harder when the CO_2 is injected primarily for "storage" or "sequestration" in CCS operations. As Professor Pierce has noted, labeling an activity as "storage" suggests an intent to retrieve the CO_2 in the future, even though the real intent of CCS appears to be to dispose of the CO_2 permanently.[70] Should an injector of CO_2 for CCS be deemed to abandon the CO_2, much as injectors of produced water for disposal are deemed to abandon the water?[71] Ultimately, the injector's intent should be determined by an objective test. Where the substance is injected pursuant to a state CCS statutory scheme, or is intended to qualify for a state or federal tax credit, the terms of such statutes and regulations should factor into the analysis, and, depending on their provisions, may even be dispositive as to ownership of the injected substance.

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[66] Schremmer, "Pore Space Property," *supra* note 9.

[67] *See, e.g.*, W. Edmond Salt Water Disposal Ass'n v. Rosecrans, 226 P.2d 965, 970 (Okla. 1950) (finding defendant "abandoned" injected salt water and could not be liable for its invasion of plaintiff's property).

[68] *See, e.g.*, Wyo. Stat. Ann. § 35-11-313 (requiring the owner of stored CO_2 to provide long-term monitoring and liability insurance).

[69] *See* B.L. McFarland Drilling Contractor v. Connell, 344 S.W.2d 493, 495–97 (Tex. Civ. App. 1961).

[70] David E. Pierce, "New Subsurface Property Rights in an Old Trespass World," 65 *Rocky Mt. Min. L. Inst.* 4-1, 4-36 (2019).

[71] *Rosecrans*, 226 P.2d at 970.

Underground storage of produced or recycled water for reuse in oil and gas operations raises additional questions. Here, the "storage" label fits because the injector actually intends the sequestration to be temporary. The label and the injector's intent would strongly suggest title should remain with the injector. However, many western states have dedicated all underground waters to public ownership and state administration, which may include, depending on the particular statutory language, injected produced or recycled water.[72] To store water underground in these states without forfeiting title, operators may have to obtain a statutory aquifer storage permit.[73] While available in many states, aquifer storage programs were likely drafted with freshwater in mind, and it may be unclear whether they would exempt stored produced water.

§ 5.03 Ownership Rights and Liabilities in Produced Water

[1] Introduction

If our prognosticators are correct, oil and gas lawyers should prepare to become produced-water lawyers in the 2020s. A number of survey respondents predicted that issues relating to the ownership and management of produced water will grow in importance.

Modern oil and gas drilling and completion techniques are highly water intensive. Hydraulic fracturing completions of horizontal wells can require 100 barrels of water per foot of lateral wellbore.[74] Coincidentally, much oil and gas development in the United States, and all of the development in the Rocky Mountain region, occurs in arid places with few natural freshwater resources. In these regions, concerns over the use of freshwater in oil and gas production, and particularly hydraulic fracturing, are growing.[75]

At the same time as freshwater resources are becoming scarcer, the volume of produced water brought to the surface in oil and gas extraction is increasing and becoming difficult to manage.[76] Although horizontal wellbores generally produce a lower ratio of produced water to oil and gas compared to vertical wellbores, the average total volume of produced water far exceeds that of vertical production.[77]

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[72] *E.g.*, N.M. Stat. Ann. § 72-12-1.

[73] *Id.* § 72-5A-8.

[74] *See* Andrew Kondash & Avner Vengosh, "Water Footprint of Hydraulic Fracturing," 2 *Envtl. Sci. & Tech. Letters* 276, 276–80 (2015).

[75] *See* Bobby Magill, "Water Use Rises as Fracking Expands," *Sci. Am.* (July 1, 2015).

[76] *See* Katie Zemlick et al., "Mapping the Energy Footprint of Produced Water Management in New Mexico," 13(2) *Envtl. Research Letters* 1, 9–10 (2018).

[77] *See id.* at 4–5.

To help manage growing volumes of produced water, many hope technology will enable new beneficial uses for produced water.[78] Seeing this potential, states are starting to create the conditions for markets to develop for the use of produced water by defining the ownership of produced water and regulating its recycling and reuse inside and outside of oil and gas development. These regulatory schemes do not necessarily mesh well with background principles of water law.

The following subsections discuss this tension between ownership of produced water under common law and prior appropriation principles on the one hand, and recent produced water legislation in Wyoming, Colorado, Texas, and New Mexico on the other.

[2] Ownership of Produced Water Under the Common Law

Under the common law, ownership of produced water is determined by the ad coelum doctrine and the rule of capture. Under the ad coelum doctrine, ownership of land includes title to the underlying groundwater, subject to divestment by a neighboring landowner producing the water from its own well and taking title under the rule of capture.[79] Logically, the same rules that apply to usable groundwater should apply to underground salt water.

When a landowner severs an interest in the underlying minerals (by conveyance or reservation), the common law presumes that a property right not expressly conveyed is retained, and, conversely, that a right not expressly reserved is conveyed.[80] Thus, in a conveyance or reservation of the minerals in land, the groundwater, and logically the underground salt water, will remain with the surface estate unless expressly conveyed or reserved with the mineral estate. In split estate lands, therefore, salt water should be part of the surface estate unless expressly included in the mineral severance.

Unlike most states,[81] Texas courts still follow the common law for most groundwater. In *Edwards Aquifer Authority v. Day*, the Texas Supreme Court held that all underground waters (which logically includes salt

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[78] Burron & Zobell, *supra* note 38, at 12-7 to 12-8.

[79] Frazier v. Brown, 12 Ohio St. 294, 304–05 (1861), *overruled by* Cline v. Am. Aggregates Corp., 474 N.E.2d 324 (Ohio 1984).

[80] Anderson, "Who Owns the Pore Space?" *supra* note 8, at 99–100.

[81] Schremmer, "Pore Space Property," *supra* note 9.

water) belong to the landowner.[82] The Texas Supreme Court further held in *Coyote Lake Ranch LLC v. City of Lubbock* that groundwater is severable as a separate estate in land, and that the accommodation doctrine applies to govern the relationship between the owners of the surface and groundwater estates.[83] Like Texas, Oklahoma[84] and Louisiana[85] follow the rule of capture for groundwater.

Since underground waters, including salt water, are an element of the surface estate under common law principles, in these jurisdictions, the mineral estate or oil and gas leasehold estate has implied rights to use produced water as reasonably necessary to develop the underlying minerals.[86] Within this framework, a mineral owner or lessee may reinject produced water for disposal, pressure maintenance, or secondary recovery, and may recycle and reuse produced water for other on-lease purposes, like road maintenance and drilling and completion operations.

But when use of produced water is not reasonably necessary for on-tract mineral development, a mineral owner or lessee needs the consent of the surface owner to exercise any rights in the water. Thus, the mineral owner or lessee may not sell or dispose of produced water from a lease for use elsewhere for any purpose. Additionally, the mineral owner or lessee may not use the produced water for purposes unrelated to oil and gas production, such as irrigation or industrial use, even if such use take place on the lease premises. By using produced water in this manner without consent, a mineral owner or lessee opens itself to liability to the surface owner for damages, which could include income generated from use or disposition of the produced water.

[3] Ownership of Produced Water Under Prior Appropriation

Most western states with significant oil and gas production, including New Mexico, Colorado, North Dakota, Wyoming, and Kansas, follow the prior appropriation doctrine of water law rather than the common law. In prior appropriation states, the owner of land generally does not own

[82] 369 S.W.3d 814 (Tex. 2012). For thoughtful analysis, see Burke W. Griggs, "Water: Practical Challenges and Legal Rights to Acquire and Recycle Water for Hydraulic Fracturing," 56 *Rocky Mt. Min. L. Fdn. J.* 69, 108–09 (2019).

[83] 498 S.W.3d 53, 64 (Tex. 2016).

[84] Griggs, *supra* note 82, at 84.

[85] La. Stat. Ann. §§ 31:4, :8, :14; Adams v. Grigsby, 152 So. 2d 619 (La. Ct. App. 1963).

[86] *See* § 5.02[2][b], *supra*.

underground waters, which would include salt water.[87] Instead, underground waters are public property that is administered by the state. Rights to use water are acquired by diverting it for beneficial use. Priority among multiple rights holders in the same source of water is determined based strictly on temporal priority—first in time is first in right.[88]

Depending on the scope of each state's public dedication of underground waters, salt water may be public property to be administered by the state.[89] If so, a person wishing to appropriate salt water for beneficial uses would need a permit to drill a well from the appropriate state agency, usually the state engineer's office.[90] A typical permit entitles the appropriator to take a certain quantity of water, at a certain rate, from a certain point of diversion, and for use at a particular place,[91] and may impose quality standards for certain uses.[92]

Under these default provisions, the state likely "owns" produced salt water, and the right to use any particular quantum of produced water would belong to its appropriator—likely an operator of an oil and gas lease—rather than the surface estate owner. Under these circumstances, an operator would owe no compensation (for damages, royalty, or otherwise) to a mineral owner or surface owner for production of salt water for beneficial use. However, as Professor Burke Griggs has observed, the reasoning of *Edwards* and *Coyote Ranch* might be gaining traction in prior appropriation jurisdictions, some of which, as noted below, have exempted produced water from state ownership and resorted to common law principles.[93]

[4] State Regulation of Ownership of Produced Water

It appears that only four states have adopted statutes specifically addressing ownership of produced water and its application for beneficial purposes within and outside of the oil and gas industry. The following briefly summarizes each, paying special attention to the farthest-reaching scheme, New Mexico's Produced Water Act.

[a] Wyoming

Wyoming is a prior appropriation state. By statute, Wyoming treats produced water, called "by-product water," largely the same as groundwater

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[87] *E.g.*, Chance v. BP Chems., Inc., 670 N.E.2d 985, 992 (Ohio 1996).

[88] Griggs, *supra* note 82, at 84–87.

[89] *E.g.*, N.D. Const. art. XI, § 3; Wyo. Stat. Ann. § 41-3-904(a).

[90] Burron & Zobell, *supra* note 38, at 12-4.

[91] *See* Griggs, *supra* note 82, at 85.

[92] Burron & Zobell, *supra* note 38, at 12-4.

[93] *See* Griggs, *supra* note 82, at 108.

for purposes of administration and control.[94] Under Wyoming's prior appropriation regime, groundwater is the property of the state, and rights to use it vest by diverting it for beneficial use.[95] The permitting requirements for groundwater are applied to beneficial uses of byproduct water, except when it has been commingled with other waters.[96]

[b] Colorado

Colorado is also a prior appropriation state. By statute, Colorado has "declared that the traditional policy of the state of Colorado, requiring the water resources of this state to be devoted to beneficial use in reasonable amounts through appropriation, is affirmed with respect to the designated groundwaters of this state . . . ."[97] Thus, all designated groundwater is subject to appropriation under Colorado's prior appropriation doctrine. Rights to use such groundwater belong to the appropriator, rather than the landowner as under traditional common law principles. In 2009, the Colorado Supreme Court in *Vance v. Wolfe*, for example, held that the State Engineer has administrative authority over the dewatering of coalbed methane wells.[98]

However, state stewardship of groundwater does not include "nontributary groundwater." Thus, nontributary groundwater is not subject to prior appropriation but instead is the property of the overlying landowner.[99] Further, "in Colorado, produced water has been administratively determined to be nontributary, and thus part of the surface owner's estate."[100] Operators may extract and use produced water in connection with oil and gas operations within the same geologic basin with no need for a permit. This includes such uses as commercial disposal, road spreading, and dust control.[101]

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[94] Wyo. Stat. Ann. §§ 30-5-104(d)(ii)(D), (vi)(B), 41-3-903.

[95] *Id.* § 41-3-101.

[96] Burron & Zobell, *supra* note 38, at 12-11; Wyo. Stat. Ann. § 41-3-904.

[97] Colo. Rev. Stat. § 37-90-102(1).

[98] 205 P.3d 1165, 1168 (Colo. 2009); *see also* Burron & Zobell, *supra* note 38, at 12-15 (discussing *Vance*).

[99] Colo. Rev. Stat. § 37-90-102(2) ("The doctrine of prior appropriation shall not apply to nontributary groundwater. . . . Such water shall be allocated . . . upon the basis of ownership of the overlying land."); *In re* Smith, 924 P.2d 155, 158 (Colo. 1996) (holding that the overlying landowner has an inchoate right "to extract nontributary ground water as incident to the right of ownership of land").

[100] Griggs, *supra* note 82, at 108 (citing 2 Colo. Code Regs. § 402-17:17.5).

[101] Colo. Rev. Stat. § 37-90-137(a).

[c] Texas

In 2013, the Texas adopted statutes governing the treatment, recycling, and reuse of produced water.[102] As noted, Texas follows the common law for groundwater, and would likely vest title to salt water in the surface estate. However, section 122.002 of the Texas Natural Resources Code provides that "when fluid oil and gas waste is produced and used by or transferred to a person who takes possession of that waste for the purpose of treating the waste for a subsequent beneficial use, the waste is considered to be the property of the person who takes possession of it . . . ."

Section 122.002 seems to contradict *Edwards* and *Coyote Lake* by divesting the surface estate of title to produced water in favor of the person who takes possession of it for purposes of treating it for a beneficial use, which is likely to be the operator of a lease. In contrast to Colorado, a prior appropriation state that imported common law principles for produced water, Texas seems to have imported prior appropriation principles into its common law concerning produced water.

[d] New Mexico

In 2019, New Mexico adopted the Produced Water Act to regulate produced water ownership, recycling, and reuse.[103] To begin to understand the Act's effect on ownership of produced water, it is necessary to review a bit of the legal history of New Mexico's water law.[104] New Mexico is a prior appropriation state. Adopted in 1911, the state's constitution declares that "[t]he unappropriated water of every natural stream, perennial or torrential, within the state of New Mexico, is hereby declared to belong to the public and to be subject to appropriation for beneficial use . . . ."[105] In 1927, the legislature adopted a statute declaring the water of "underground streams, channels, artesian basins, reservoirs, or lakes, the boundaries of which may be reasonably ascertained by scientific investigations or surface indications," to belong to the public and be subject to appropriation for beneficial use.[106] The statute also gave the Office of the State Engineer jurisdiction over such underground waters.[107]

The 1927 Act was immediately challenged on constitutional grounds by landowners claiming they owned the water underlying their land pursuant

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[102] Tex. Nat. Res. Code Ann. §§ 122.001–.004.

[103] N.M. Stat. Ann. §§ 70-13-1 to -5.

[104] I am indebted to Bill Brancard for this lesson.

[105] N.M. Const. art. XVI, § 2.

[106] Yeo v. Tweedy, 286 P. 970, 971 (N.M. 1929) (quoting section 1 of the 1927 Act). The current version of this section is located at N.M. Stat. Ann. § 72-12-1.

[107] *Yeo*, 286 P. at 971 (citing section 2 of the 1927 Act).

to the common law. The New Mexico Supreme Court upheld the Act in *Yeo v. Tweedy*, holding that prior appropriation had been the law of the land since before statehood[108] and that both the statutory and constitutional dedications of water to public ownership and appropriation were "merely declaratory of existing law."[109] Moreover, the court held that prior appropriation applies to water underlying lands derived from the United States under the Homestead Acts, because Congress had "waived the common-law rights of the United States, as a landowner, not only as to surface streams, but as to percolating waters."[110] While *Yeo* and its progeny involved underground sources of *potable* water, New Mexico statutes dating to the 1950s also subject undeclared deep aquifers consisting only of *nonpotable* water to administration by the State Engineer according to prior appropriation.[111]

It was against this legal backdrop that the legislature adopted the Produced Water Act in 2019. The Act attempted to clarify ownership of produced water, set up a framework for regulating its reuse within and outside of the oil and gas industry, and resolve a jurisdictional conflict over salt water that had developed between the State Engineer and the Oil Conservation Division (OCD).[112] In resolving this conflict and defining rights in produced water, the legislature appeared to break from certain traditional principles of prior appropriation.

Section 3 of the Act clarifies jurisdiction over produced water, stating that OCD has exclusive authority to regulate produced water that is disposed of or reused in oil and gas production,[113] and the Water Quality Control Commission (WQCC) has authority to permit the reuse of produced water for non-oil and gas purposes.[114] Thus, contrary to traditional prior appropriation principles, the State Engineer does not regulate produced water, as it does other waters of the state.[115]

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[108] *Id.*

[109] *Id.* at 972.

[110] *Id.* at 974; *see also* State *ex rel.* Bliss v. Dority, 225 P.2d 1007, 1015–16 (N.M. 1950) (holding that patents issued under the Desert Land Act do not include common law rights to the water flowing through or under the lands patented).

[111] N.M. Stat. Ann. § 72-12-25.

[112] *See* Scott Woody, "The Regulatory Framework of Produced Water in New Mexico and Why N.M. Stat. Ann. § 72-12-25(B)(1) (2009) Should Be Amended," 58 *Nat. Resources J.* 223, 233–34 (2018).

[113] N.M. Stat. Ann. § 10-13-3(A).

[114] *Id.* § 70-13-3(B).

[115] *See id.* § 70-13-4(C) (stating no permit from the State Engineer is required for disposition of produced, recycled, or treated water).

Section 4 attempts to clarify the status of produced water in the state's prior appropriation law; in so doing, it defines rights in produced water in a number of ways. It appears to exclude produced, recycled, and treated water from appropriation. It states: "The disposition of produced water, recycled water or treated water, including disposition by use, *is neither an appropriation of water for beneficial use . . . nor a waste of water, and no water right shall be established by the disposition of produced water*, recycled water or treated water."[116]

Section 4 then attempts to clarify ownership rights and liabilities in produced water by adding section 70-13-4 to the New Mexico Statutes. Section 70-13-4 has four key provisions. First, it places "responsibility [for] and . . . the control of" all produced water in the working interest owners and operator of the well.[117]

Second, it enumerates the rights and responsibilities of working interest owners and operators in produced water. Specifically, "[t]he working interest owners and operator shall have *a possessory interest* in the produced water, *including the right to take possession of the produced water and to use, handle, dispose of, transfer, sell, convey, transport, recycle, reuse or treat the produced water and to obtain proceeds for any such uses*."[118]

Third, it establishes the standard of care governing an operator's responsibility for produced water. Specifically, "[t]he operator of the oil and gas well that the produced water is produced from shall handle the use, disposition, transfer, sale, conveyance, transport, recycling, reuse or treatment of the produced water *as a reasonably prudent operator*."[119]

Fourth, it empowers operators to transfer, sell, and convey identical rights and liabilities "to another operator, transporter, pipeline, midstream company, plant, processing facility, refinery or entity that provides recycling or treatment services for produced water."[120]

Section 5 of the Act prohibits contractual disincentives to using produced, recycled, and treated water, instead of freshwater, for oil and gas production activities by voiding three kinds of contract provisions as against public policy. The first kind of void provisions deal with contracts that charge fees for transportation of water over state lands, and are only indirectly related to produced water.[121] The second type of void contracts

[116] *Id.* § 70-13-4(C) (emphasis added).

[117] *Id.* § 70-13-4(A)(1).

[118] *Id.* (emphasis added).

[119] *Id.* (emphasis added).

[120] *Id.* § 70-13-4(A)(2).

[121] *Id.* § 70-13-5(A).

are those that "require[] fresh water resources to be purchased for oil and gas operations when produced water, treated water or recycled water is available and able to be used and the operator elects to use that produced water, treated water or recycled water for the oil and gas operations."[122] The third type "relates to the purchase of water and precludes an operator from purchasing or using produced water, treated water or recycled water in the operator's oil and gas operations when such water is available for the operations."[123]

It is possible, as Professor Griggs has suggested, to interpret the Act as making produced water the property of the mineral estate by default.[124] Clearly, the Act exempts produced water from appropriation, the requirement of beneficial use, and the prohibition against waste. In light of *Yeo*, however, courts might find it difficult to conclude that section 4 terminates public ownership of aquifers of salt water, since common law principles of private ownership never prevailed in New Mexico. Under this view, it would appear that produced water is public property subject to unlimited extraction by oil and gas operators who produce it as an incidental byproduct of oil and gas drilling and production. Operators obtain rights (and liabilities) to treat, reuse, and dispose of produced water as they please, according to regulations of the OCD and WQCC, but receive no appropriative right to protect them from drainage of produced water by other operators.

Depending on the regulations these agencies ultimately promulgate, such a rule could incentivize operators to invest in technology to utilize produced water. Operators would not have to incur the costs of contracting with severed surface owners to obtain rights in produced water. However, the fact that the Act's provisions are susceptible of multiple reasonable interpretations may well undermine its potential to encourage the growth of markets for produced water.

§ 5.04 Competing Surface Uses in a Shifting Energy and Legal Landscape

[1] Introduction

As with pore space and produced water, the law of surface use for oil and gas development is likely to undergo meaningful development following incremental, but powerful, changes in conditions on the ground. In the case of surface use, legal changes are likely to follow transformations from conventional to unconventional production, from fossil fuels to renewable

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[122] *Id.* § 70-13-5(B).

[123] *Id.* § 70-13-5(C).

[124] Griggs, *supra* note 82, at 108.

energy as the preferred power source, in public perceptions and policy, and in strengthening alliances between surface owners and environmental interests. These transformations led several of our survey participants to predict growing surface-use conflicts between renewable energy and oil and gas development, as well as further changes in the law of surface access and use for oil and gas exploration, development, and transportation during the 2020s.

The following discussion begins with a brief synthesis of the shifting energy and public policy landscape. It then examines the changing legal landscape, focusing on trends relating to the accommodation doctrine and the scope of the mineral estate's implied surface rights, which will affect oil and gas development in the 2020s. It concludes by examining possible legislative changes predicted by our survey participants.

[2] Shifting Energy Landscape

Scholars have been warning about clashes between renewable energy and oil and gas development on the same lands since at least the beginning of the past decade.[125] These concerns are not new. Conceptually, accommodating renewable and mineral development is no different from accommodating multiple mineral development.[126] Multiple mineral development has been a judicial and legislative issue for well over a century, and it can be "full of difficulty."[127] The earliest example of conflict arose between development of coal and oil and gas in Appalachian states in the nineteenth century. The problem led the Pennsylvania Supreme Court in *Chartiers Block Coal Co. v. Mellon* to solicit the legislature to resolve the issue,[128] which it did, generally in favor of coal development, years later.[129] Other examples of legislative solutions include state[130] and federal[131] preferences

[125] *See, e.g.*, K.K. DuVivier & Roderick E. Wetsel, "Jousting at Windmills: When Wind Power Development Collides with Oil, Gas, and Mineral Development," 55 *Rocky Mt. Min. L. Inst.* 9-1 (2009); David E. Pierce, "Sustaining the Unsustainable: Oil and Gas Development in the 21st Century," 23 *Kan. J.L. & Pub. Pol'y* 362, 375 (2014).

[126] My thanks to Professor Bruce Kramer for this insight. For his discussion of the issue in the context of lignite and oil and gas development, see generally Bruce M. Kramer, "Conflicts Between the Exploitation of Lignite and Oil and Gas: The Case for Reciprocal Accommodation," 21 *Hous. L. Rev.* 49 (1984).

[127] Chartiers Block Coal Co. v. Mellon, 25 A. 597, 598 (Pa. 1893).

[128] *Id.* at 599.

[129] *See* Gas Operations Well-Drilling Petroleum and Coal Mining Act of 1955, 52 Pa. Stat. §§ 2101–2602 (repealed 1984).

[130] *E.g.*, N.M. Stat. Ann. § 70-2-3(F).

[131] *E.g.*, Secretarial Order No. 3324, "Oil, Gas, and Potash Leasing and Development Within the Designated Potash Area of Eddy and Lea Counties, New Mexico" (Dec. 3, 2012); *see* 77 Fed. Reg. 71,814 (Dec. 4, 2012).

for potash development over oil and gas in New Mexico's portion of the Permian Basin.[132]

While not new, concerns about the clash between mineral and renewable development might be growing more urgent heading into the 2020s. Vast areas of land are poised for wind or solar production in the same parts of the country that are seeing precipitous increases in unconventional oil and gas production.[133] Renewable energy generation is expected to increase 139% in the United States by 2050, with wind and solar making up 94% of the growth.[134] Alongside this trend, tight shale oil production is projected to grow significantly, with the production from the Marcellus, Utica, and Permian shale plays projected to double by 2050.[135] Production from conventional reservoirs is projected to remain level as those reservoirs mature.[136] The outbreak of COVID-19 will certainly slow these growth trends, but probably will not significantly affect their ultimate trajectory.

Additionally, states appear poised to clamp down on venting and flaring of natural gas, which will spur demand for new pipeline takeaway capacity.[137] Accordingly, the next decade is likely to see significant investment in midstream infrastructure for unconventional shale plays,[138] and growth in associated controversies over siting easement issues.

Furthermore, environmental interests are exercising greater influence in public policy on oil and gas development,[139] and increasingly exert their influence on the side of surface owners in negotiations with mineral developers. In fact, many surface-use agreements now contain limitations and obligations on developers intended to benefit the environment or the public at large.[140]

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[132] For additional examples, see Bruce M. Kramer & Patrick H. Martin, *The Law of Pooling and Unitization* § 4.05[1] (3d ed. 2020).

[133] *See* Wyatt D. Swinford, "Range War: Conflicts Between Oil & Gas Operations and Wind Farms," 70 *Inst. on Oil & Gas L.* § 4.02 (Ctr. for Am. & Int'l L. 2019).

[134] *Id.*

[135] *Id.*

[136] *Id.*

[137] Office of Oil & Nat. Gas, U.S. Dep't of Energy, "Natural Gas Flaring and Venting: State and Federal Regulatory Overview, Trends, & Impacts," at 22–23 (June 2019).

[138] *Id.* at ii.

[139] Monika U. Ehrman, "A Call for Energy Realism: When Immanuel Kant Met the Keep It in the Ground Movement," 2019 *Utah L. Rev.* 435, 438–40 (2019) (discussing the "keep it in the ground" movement).

[140] *See* Tara K. Righetti, "Contracting for Sustainable Surface Management," 71 *Ark. L. Rev.* 367, 393 (2018) (noting the "unlikely alliance between green advocacy, tribes, and western ranchers with a common goal of conservation").

In light of these realities, it is unlikely that the doctrines and surface damage legislation of yesteryear will continue to satisfy the growing demand for less, and less-intensive, land use for oil and gas development.

[3] Shifting Legal Landscape

The tectonic changes in energy-production land use over the last 20 years have significantly affected the prevailing legal rules. Most notably, doctrinal and statutory changes have limited the scope of a severed mineral estate's implied surface-use rights. The following sections sketch the trend toward greater rights for surface owners as against severed mineral owners, first in judicial decisions and then in the context of foreseeable statutory changes.

[a] Doctrinal Trends

In general, the owner of a severed mineral estate enjoys an implied easement to use and consume the overlying surface estate to the extent reasonably necessary or convenient to develop the underlying minerals.[141] With respect to this implied easement, the mineral estate is dominant, and the surface estate servient, such that the mineral owner must compensate the surface owner for damage only when acting beyond the easement's scope.[142] Most jurisdictions, however, have significantly modified this classical, "unidimensional" model of surface-use rights,[143] reducing the mineral estate's rights in favor of the surface estate.

[i] Accommodation Doctrine

In many jurisdictions, the classical model has been replaced with a "multidimensional" model that balances the surface-use rights of both estates to strike fair resolutions on a case-by-case basis.[144] The most prominent multidimensional approach is the accommodation doctrine. As originally articulated by the Texas Supreme Court in *Getty Oil Co. v. Jones*, the accommodation doctrine requires mineral developers to yield to the surface owner's preexisting uses when the mineral developer's operations would substantially impair the preexisting surface use and there is a reasonable alternative available on the premises.[145]

As the doctrine has evolved in recent cases, mineral developers may have significant obligations to accommodate competing renewable energy

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[141] Sun Oil Co. v. Whitaker, 483 S.W.2d 808, 810–11 (Tex. 1972). For the classic discussion on this topic, see generally Kramer, "Multiple Surface Use Issues," *supra* note 14.

[142] Damage caused by "reasonably necessary" surface use under the classical model is *damnum absque injuria*. Kramer, "Multiple Surface Use Issues," *supra* note 14, at 295–96.

[143] *Id.* at 274.

[144] *Id.* at 300 ("The multidimensional approach necessarily entails an ad hoc balancing of the competing and seeming co-equal interests . . . .").

[145] 470 S.W.2d 618 (Tex. 1971).

projects. In 2018, the U.S. Court of Appeals for the Tenth Circuit in *Bay v. Anadarko E&P Onshore, LLC*, impliedly held that under Colorado law horizontal or directional drilling may be a reasonable accommodation, even where vertical drilling would be significantly more efficient and profitable.[146] A decade earlier, in *Texas Genco, LP v. Valence Operating Co.*, a panel of the Texas Court of Appeals reached essentially the same result.[147]

A related case, *Valence Operating Co. v. Texas Genco, LP*,[148] also held that a surface owner's *future* plans for the surface must be accommodated if they are part of the design of an overall project already in operation.[149] Renewable energy projects are designed and planned years in advance of their physical construction, meaning that mineral developers may have to accommodate wind or solar facilities that do not yet exist on the surface.

While future plans may be sufficient to establish a preexisting use by the surface owner, *Osage Nation ex rel. Osage Minerals Council v. Wind Capital Group, LLC*[150] suggests the same is not necessarily true for the mineral owner. There, an Oklahoma federal district court denied a mineral owner's request to enjoin a wind development on the mineral owner's oil and gas lease. The court reasoned that the mineral owner failed to show sufficient conflict between the wind developer's facilities and the mineral owner's plan of development.[151]

In sum, in areas being newly developed for both renewable energy and oil and gas, the renewable and mineral developers are in a race to establish a plan of development that is sufficiently concrete to warrant protection under the doctrine. When a renewable project prevails in this race, mineral developers may be required to use unconventional means of drilling and production to accommodate the planned renewable project, even where vertical drilling would be substantially more efficient.[152]

[ii] Areal Scope of Implied Surface Easement

Another significant trend for mineral developers concerns the areal scope of the implied easement. In general, the mineral estate's implied

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[146] 912 F.3d 1249, 1263 (10th Cir. 2018).

[147] 187 S.W.3d 118, 124–25 (Tex. App. 2006).

[148] 255 S.W.3d 210 (Tex. App. 2008) (involving the same parties and oil and gas lease but a different proposed drilling location).

[149] *Id.* at 218.

[150] No. 4:11-cv-00643, 2011 WL 6371384 (N.D. Okla. Dec. 20, 2011).

[151] *Id.* at *1–2, *8; *see also* Swinford, *supra* note 133, § 4.04[2].

[152] Regarding conflicts between wind projects and oil and gas surface activities, see Ernest E. Smith & Becky H. Diffen, "Winds of Change: The Creation of Wind Law," 5 *Tex. J. Oil, Gas, & Energy L.* 165, 181–86 (2009).

surface rights permit use *only* to benefit the minerals underlying the servient estate.[153] This seemingly straightforward proposition has proven difficult to apply in the context of multi-tract horizontal development of pooled leases.[154] The most recent case on point, *EQT Production Co. v. Crowder*,[155] indicates how narrowly some courts will construe the implied easement in this context.

In *Crowder*, the surface owner plaintiffs sued the defendant lessee EQT Production Co. (EQT) for trespass. The plaintiffs alleged that EQT exceeded its implied surface-use easement when it used the plaintiffs' land to drill horizontal wells to produce natural gas from underneath both the plaintiffs' tract and other lands. In resolving the dispute, the West Virginia Supreme Court of Appeals paid close attention to chains of title.

In 1901, Joseph and Bell Carr granted an oil and gas lease to EQT's predecessor. In 1936, the Carrs' successors conveyed "the surface only" of the Carr tract, retaining the reversionary interest and royalties under the lease. The grantee of the surface then partitioned it into several smaller parcels, with the plaintiffs ultimately succeeding to title in three of the parcels. In 2011, EQT obtained a lease amendment from the owners of the Carr tract's mineral estate to authorize pooling and unitization, and thereafter unitized the Carr lease with other leases on neighboring lands.[156]

In 2012, EQT entered the plaintiffs' tracts, built roads, constructed a massive well pad, and drilled 9.7 miles of horizontal wellbores under neighboring properties. The plaintiffs sued in 2014, alleging trespass and contending that "EQT did not have the right to enter on, burden, damage, or otherwise occupy Plaintiffs' surface lands at all for the purpose of extracting minerals from other, neighboring mineral tracts."[157]

The trial court granted partial summary judgment for the plaintiffs, and the supreme court affirmed.[158] On appeal, EQT argued that its actions were proper because (1) 37.5% of the wellbores were in the minerals under the Carr tract, (2) the 1901 lease was properly unitized with the other leases where its producing wellbores were located, and (3) the operations were

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[153] Merriman v. XTO Energy, Inc., 407 S.W.3d 244, 248–49 (Tex. 2013).

[154] *See* Bruce M. Kramer, "Horizontal Drilling and Trespass: A Challenge to the Norms of Property and Tort Law," 25 *Colo. Nat. Resources, Energy & Envtl L. Rev.* 291, 332–38 (2014) (discussing courts' disparate treatment of the subject).

[155] 828 S.E.2d 800 (W. Va. 2019).

[156] *Id.* at 803–06.

[157] *Id.*

[158] *Id.* at 802–03.

reasonably necessary to develop the minerals under the Carr tract.[159] After reciting, at length, the general rule that the implied easement only permits use of the surface for development of the directly underlying minerals, the court turned to the key issue: whether EQT's attempt to pool the 1901 lease with neighboring leases was effective. If so, the pooling should modify the general rule and permit use of the Carr tract to develop not only underlying minerals but also minerals under unitized lands.[160]

The court concluded that the 2011 lease amendment was ineffective to grant EQT the power to pool or unitize the Carr tract. It reasoned as follows:

(1) When the surface estate was severed from the mineral estate in 1936, the surface estate was subject only to the terms of the 1901 lease. The 1901 lease did not include the power to pool or unitize the lease or to use the surface in connection with operations on other lands.

(2) The 1936 severance deeds contained no provisions expressly or impliedly altering the burden that the 1901 lease imposed on the surface.

(3) Following the 1936 severance, the mineral estate had no express or implied rights to use the surface of the Carr tract beyond what the 1901 lease expressed. The power to pool or unitize the surface remained with the surface estate.

(4) Therefore, EQT's attempt in 2011 to amend the 1901 lease to include the power to pool or unitize failed, because the mineral estate could not convey that right to EQT.[161]

Implicit in this reasoning is the idea that the power to expand the implied surface easement by pooling does not inhere in title to a mineral interest. That is, absent an express provision in the severing instrument, a severed mineral interest does not include the power to pool or unitize its implied surface rights with other parcels of land. If the pooling right were an incident of title to a mineral interest, the 1936 deeds reserving the mineral interest would have automatically reserved to the mineral estate the right to pool, and EQT's 2011 lease amendment would have been effective. But because the 1936 deeds did not specifically reserve the power to pool the surface easement, pooling power remained in the surface estate.

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159 *Id.* at 805.

160 *Id.* at 807–10.

161 *Id.* at 810.

The *Crowder* position has its skeptics.[162] It also sits in tension with several prior cases. As recently as 2014, the Texas Supreme Court held, in *Key Operating & Equipment, Inc. v. Hegar*, that the lessee of a severed mineral interest has the implied right to expand its surface easement on a tract by pooling.[163] Almost 30 years prior, the Texas Court of Appeals stated, in *Delhi Gas Pipeline Corp. v. Dixon*, that a severed mineral lessee's implied easement "includes the right to use as much of the surface estate as is reasonably necessary to produce oil or gas from a well located on a production unit with which the tract has been unitized."[164] Similarly, the New Mexico Supreme Court held in *Kysar v. Amoco Production Co.* that the lessee of a severed mineral estate has the right to use the surface of leased land that is included in a communitization agreement to access a well located on other lands within its unit.[165]

Crowder even seems in tension with the same court's decision in *Andrews v. Antero Resources Corp.*,[166] issued only five days later. Antero Resources Corp. (Antero) owned or leased the severed minerals in several separate tracts. The surface estates in the separate tracts were owned by various surface owners. Some of these surface owners sued, claiming that the horizontal wells Antero operated to develop its severed minerals were wrongfully interfering with their use and enjoyment of the surface of their land, "even though the wells [were] not physically located on any of their properties."[167] The West Virginia Supreme Court of Appeals held that Antero had the right to use the plaintiffs' surface estates for the production of its mineral rights under their and other tracts, and that "the noise, traffic, dust, lights and odors of which [the plaintiffs] complain are reasonable and necessarily incident to Antero's development of the underlying minerals."[168]

It is not clear from the facts whether the plaintiffs' land was pooled or unitized with the leases where Antero's surface facilities were located. It is clear, however, that the horizontal wells and surface facilities at issue

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[162] *See* Kramer & Martin, *supra* note 132, § 20.06[1]; Lori A. Dawkins et al., "Surface Use in the Age of Horizontal Drilling: Will Horizontal Wells Be Considered a 'Reasonably Necessary' Use of the Surface?" 88 *N.D. L. Rev.* 595 (2012).

[163] 435 S.W.3d 794 (Tex. 2014); *accord* Property Owners of Leisure Land, Inc. v. Woolf & Magee, Inc., 786 S.W.2d 757, 760 (Tex. App. 1990) ("This implied surface easement of reasonable usage extends to the surface of the pooled or unitized area.").

[164] 737 S.W.2d 96, 98 (Tex. App. 1987).

[165] 93 P.3d 1272, 1273 (N.M. 2004).

[166] 828 S.E.2d 858 (W. Va. 2019).

[167] *Id.* at 860.

[168] *Id.* at 863.

served to develop multiple separate mineral estates.[169] By the reasoning in *Crowder*, Antero's mineral interest should not have included the right to use the plaintiffs' surface tracts to develop minerals under other tracts. Yet that is what the holding in *Andrews* permits.

Andrews is significant for another holding, as well. The plaintiffs asserted that the burdens imposed by Antero's horizontal drilling operations were excessive because, at the time the mineral estate was severed, vertical drilling was the only contemplated method of extraction.[170] The court disagreed, however, because the plaintiffs failed to demonstrate how the surface impacts of Antero's nearby horizontal operations exceeded those that would result from conventional vertical drilling.[171]

The court even acknowledged that horizontal drilling "actually minimizes the disruption they would otherwise experience from multiple vertical wells constructed on their properties," because "significantly more vertical wells would be needed, and each well would require its own well pad, lease road, and pipeline, all of which would be constructed on [the plaintiffs'] land."[172] Perhaps the ultimate irony of *Crowder* is that, in viewing the legal rights of the surface estate expansively, it ignores this practical reality.

[b] Statutory Changes?

In preceding decades, as mineral severance led to more and more surface owners with no interest in the underlying oil and gas, many states adopted statutes to protect surface owners from property damage caused by oil and gas development. Surface damage acts generally impose strict liability on developers for damage they cause to the surface in developing land for oil and gas. As Professor Ronald Polston explained, these statutes effectively replace the mineral estate's implied easement with a right to buy an easement.[173] Many surface damage acts impose additional obligations on the mineral developer, such as requiring them to negotiate surface-use agreements with surface owners and tenants and to notify owners and tenants before conducting operations. These statutes have been upheld

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[169] *Id.* at 860–61.

[170] *Id.* at 864–69.

[171] *Id.* at 869.

[172] *Id.* at 873.

[173] Ronald W. Polston, "Redefining the Relationship Between the Surface Owner and the Mineral Developer," 12 *Energy & Min. L. Fdn.* § 22.04[4] (1991).

against constitutional challenges, despite significant criticism by oil and gas scholars.[174]

In light of the mounting obstacles to use of the earth's surface for mineral development noted above,[175] as well as increasing severance and fractionalization of mineral rights, oil and gas scholars predict the coming of a new wave of statutory changes to the relationship between surface and mineral estates. Responding to our survey, Professor Owen Anderson predicted that the rights of severed surface owners and tenants would be further expanded by legislation, which could include more stringent dormant mineral laws that give fractionalized mineral owners fewer opportunities to preserve their unused interests from lapsing to the surface estate.[176] Anderson also contemplated changes to surface damage statutes to provide surface owners a statutory right to participate in the profits of development.[177] As he explained, "this change will actually be backed by oil and gas operators as a means of slicing through the alliance that severed surface owners and surface tenants have with the environmental community."[178]

It is true, as Professor David Pierce has observed, that the compensation paid to surface owners under existing law "can pale in comparison to the value of the production from the land," and that,

> [s]o long as surface owners lack a financial interest in continuous and maximum production from the minerals underlying their land, they will have to resort to whatever statutory, common law, and media devices available to either halt or curtail development, or to try and extract maximum damage payments from the developer.[179]

These observations led Pierce to conclude that mineral developers are already incentivized to buy the allegiance of surface owners by "cut[ting] them in on a small piece of the action."[180] Pierce also noted, however, that a statutorily imposed participation right would likely constitute a taking of mineral owners' property.[181] The takings issue is discussed in full below in § 5.06[3][c].

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[174] Regarding surface damage acts, see John S. Lowe, "The Easement of the Mineral Estate for Surface Use: An Analysis of Its Rationale, Status, and Prospects," 39 *Rocky Mt. Min. L. Inst.* 4-1 (1993), and Kramer, "Multiple Surface Use Issues," *supra* note 14, at 338–41.

[175] *See* § 5.04[1]–[2], *supra*.

[176] Email from Owen Anderson to Drew Cloutier (Nov. 6, 2019) (on file with author).

[177] *Id.*

[178] *Id.*

[179] Pierce, "Sustaining the Unsustainable," *supra* note 125, at 369.

[180] *Id.*

[181] *Id.* at 369 n.47.

In evaluating whether such a statute would pass muster under the Takings Clause, a court would consider whether the legislation serves the public interest and achieves its purpose through rational means.[182] A statutory participation right may serve multiple purposes. One reason for granting surface owners a right to participate in the profits of oil and gas production from their land might be to promote fairness in the distribution of profits from development.[183] Others have questioned whether it actually is unfair for severed surface owners, who acquired their status with at least constructive notice that the mineral interest was severed, to bear the surface impacts of mineral development.[184] Nonetheless, adjusting the economic rights of mineral and surface owners would likely qualify as a legitimate public purpose under constitutional standards.[185]

Another rationale for statutory participation rights, as Professor Anderson suggested, may be to reduce transaction costs that impede bargaining for surface-use agreements between mineral and surface users.[186] Particularly in states where surface-use agreements are required as a condition to conducting surface operations,[187] transaction costs sometimes prohibit mineral development.[188] Transaction costs may be high for multiple reasons. The parties are often locked in a bilateral monopoly in which the surface owner may hold out or demand unreasonable compensation.[189] Moreover, alliances between surface owners and environmental interests may stymie negotiations by demanding terms to protect third-party environmental interests that developers are unwilling or unable to accept.[190] Reducing transaction costs to incentivize efficient development of oil and gas reserves would certainly qualify as a valid public purpose under constitutional standards.

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[182] *See* § 5.06[2], *infra*.

[183] *See generally* Michelle Andrea Wenzel, "The Model Surface Use and Mineral Development Accommodation Act: Easy Easements for Mining Interests," 42 *Am. U. L. Rev.* 607, 617 n.42, 625 n.75 (1993) (arguing surface owners "subsidize" private mineral development on their land).

[184] James L. Huffman, "The Allocative Impact of Mineral Severance: Implications for the Regulation of Surface Mining," 22 *Nat. Resources J.* 201, 229 (1982); Pierce, "Sustaining the Unsustainable," *supra* note 125, at 368–69; Kramer, "Multiple Surface Use Issues," *supra* note 14, at 289.

[185] *See* § 5.06[2], *infra*.

[186] *See* Huffman, *supra* note 184, at 220–21 (discussing transaction costs).

[187] *E.g.*, Mont. Code Ann. § 82-2-303.

[188] *See* Huffman, *supra* note 184, at 220–21.

[189] John Cirace, "Synthesis of Law and Economics," 44 *Sw. L.J.* 1139, 1167 (1990).

[190] *See* Righetti, "Sustainable Surface Management," *supra* note 140, at 392–94.

In attempting to streamline negotiations for surface use, legislatures should take note of one lesson from passage of the first generation of surface damage acts. Commentators noted strikingly little change in industry practices or litigation relating to surface use, suggesting that the statutory reallocation of rights mattered little to parties' ability to strike agreement.[191] The notable exception was Oklahoma. There, surface-related litigation increased following adoption of a surface damage act. Professor Bruce Kramer concluded that the relative complexity of Oklahoma's statutory procedure was to blame for obscuring the parties' rights:

> Since Oklahoma's surface damages statute imposed the most complex procedural mechanism for resolving disputes between surface and mineral owners, it is not surprising that substantial litigation has followed its enactment. The fact that 20 years after the enactment litigation is still active suggests that the either Oklahoma surface and mineral owners are not like those in the other states or that the Legislature created a system that encouraged litigation. With the total absence of litigation in the remaining states that have adopted surface damages acts, it appears to be that it is the legislation that is flawed, not the underlying concept.[192]

The lesson for lawmakers considering any statutory change to surface-use rights is "keep it simple." Participation statutes can succeed in making mineral development more efficient and less litigious only if they define the parties' rights and duties clearly. But clarity and simplicity would not be easy to achieve in drafting participation legislation.

Drafters would face myriad difficult considerations, such as whether the developer is entitled to surface access and use in exchange for the participation interest, or instead must also bargain with the surface owner for use and access in addition to giving up an interest in production; whether the participation right will be in the nature of a landowner's royalty, an overriding royalty, a production payment, a net profits interest, or something else; whether the quantity of the interest will be a defined mandatory amount or only a default amount if the parties cannot reach agreement; whether the quantity of interest will be precisely defined or determined based on a statutory standard or local custom or practice; whether the interest will bear post-production costs; whether the interest will be subject to apportionment if the premises are owned in severalty; whether the interest is alienable; whether the interest of individual surface owners will be proportionately reduced based on their partial interest; whether the interest will continue in renewals and extensions of the underlying lease; whether the operator may require the interest holder to execute a division order

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[191] *See* Kramer, "Multiple Surface Use Issues," *supra* note 14, at 352–53; Ronald W. Polston, "Surface Rights of Mineral Owners—What Happens When Judges Make Law and Nobody Listens?" 63 *N.D. L. Rev.* 41, 62–67 (1987).

[192] Kramer, "Multiple Surface Use Issues," *supra* note 14, at 347.

as a condition to payment; and whether the interest imposes covenants of marketing, further development, and reasonable operation on the lease operator in favor of the surface owner.

In winding through this list, the reader likely has thought of several more considerations for our hypothetical drafters to wrangle with. Of course, legislatures may choose to eschew several of these questions, leaving it to courts to fill in the blanks as needed to resolve litigation over the meaning of the participation statute. Generating litigation, however, would seem contrary to the underlying purpose of streamlining relations between surface and mineral owners.

While difficult, calibrating a fair and efficient participation interest would be important. If the terms are too onerous to operators, it would discourage marginal development. If the terms are not generous enough to surface owners, a mandatory participation right could leave some worse off than if they were free to bargain for terms, and conceivably could lead to too much development. Finding an optimally fair and efficient statutory participation right would require a multitude of marginal decisions and a body of specialized knowledge. Legislatures and administrative agencies are poorly suited to the task. These decisions are better left to parties in private transactions. States considering granting surface owners a statutory participation right might do well to instead consider implementing a scheme of clearly defined default rights that induces parties to bargain consensually.[193] In this regard, the formalist unidimensional model of implied surface rights may prove superior to any statutory modification.[194]

§ 5.05 Shifting Focus of Conservation Law to Environmental Regulation

[1] Introduction

At the close of the decade, in April 2019, the governor of Colorado signed into law Senate Bill 19-181 (SB 19-181) and ushered in a new era of conservation regulation of oil and gas development. Unlike the first era of conservation law, this new era expressly prioritizes protection of public health and the environment above prevention of waste and protection of correlative rights. While Colorado has gone the furthest in prioritizing

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[193] *See* Thomas W. Merrill, "*Melms v. Pabst Brewing Co.* and the Doctrine of Waste in American Property Law," 94 *Marq. L. Rev.* 1055, 1090 (2011) (discussing "bargain-inducing default rules").

[194] *See* Huffman, *supra* note 184, at 206–09 (arguing the formalist model strikes the most efficient allocation of surface-use rights).

environmental considerations, other states, in particular California, seem poised to follow suit in the coming decade.[195]

This section traces the gradual transformation of conservation law toward environmental protection.[196] It discusses the conservation law reforms undertaken in Colorado, beginning with a summary of *COGCC v. Martinez*,[197] and followed by discussion of SB 19-181 and its effects on Colorado's industry. It then ponders the implications of conservation reform for the practice of conservation law.

[2] From Conservation to Preservation—A Very Brief History

The traditional functions of conservation law are to prevent waste of oil and gas resources and protect correlative rights of owners in common reservoirs.[198] As Professor Tara Righetti notes, in the oil and gas context, conservation has been "interpreted as encouraging development so as to maximize the total recoverable oil or gas from the reservoir."[199] By maximizing recovery of hydrocarbons and preventing waste, conservation law advances the public's interest in developing valuable natural resources as well as the interests of the individual property owners of oil and gas reserves.[200]

Traditional conservation regulation has been consistently upheld against constitutional challenges on the basis that limitations on well drilling and production are necessary to prevent waste and protect correlative rights.[201] In *Ohio Oil Co. v. Indiana*, the U.S. Supreme Court upheld an Indiana law prohibiting venting of natural gas from a particular common pool against Ohio Oil Co.'s (Ohio Oil) takings challenge.[202] Ohio Oil argued that by prohibiting venting, the Indiana law precluded Ohio Oil from producing its oil well because the only means of bringing the oil to surface was to release natural gas pressure from the reservoir. The Court disagreed, holding that legislative power "can be manifested for the purpose of protecting all the

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[195] California recently amended its conservation act to emphasize protection of the environment, "including reduction and mitigation of greenhouse gas emissions associated with the development of hydrocarbon." A.B. 1057, 2019–2020 Leg., Reg. Sess. ch. 771, at 93 (Cal. 2019).

[196] For discussion of the shifting priorities in conservation law, see Tara K. Righetti, "The Incidental Environmental Agency," 2020 *Utah L. Rev.* 685 (2020).

[197] 2019 CO 3, 433 P.3d 22.

[198] 1 Nancy Saint-Paul, *Summers Oil and Gas* §§ 4.1–4.2 (3d ed. 2019).

[199] Righetti, "The Incidental Environmental Agency," *supra* note 196, at 691.

[200] *Id.*

[201] 1 *Summers Oil and Gas*, *supra* note 198, § 4.7.

[202] 177 U.S. 190 (1900).

collective owners, by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste."[203] In sum, the law *protected* the correlative rights of all owners in the pool from any owner's wasteful dissipation of the reservoir's natural energy, and thus did not "take" any owner's private property.

The Court has even upheld state attempts to prohibit waste that did not also directly protect correlative rights. In both *Walls v. Midland Carbon Co.*[204] and *Henderson Co. v. Thompson*,[205] the Court upheld statutes prohibiting use of natural gas for manufacturing carbon black, on the basis that it wasted the gas's potential economic value. In each case, the Court justified its holding as protecting the public's interest in the gas supply, as opposed to correlative rights of the owners.[206] By 1950, the Court was prepared to declare that "[i]t is now undeniable that a state may adopt reasonable regulations to prevent economic and physical waste of natural gas."[207]

While the prevention of waste and protection of correlative rights are the traditional priorities of conservation agencies, all states also authorized their agencies to protect public safety, health, welfare, and the environment. Several states have implemented procedural environmental protections, similar to the National Environmental Policy Act, that require environmental assessments be done before oil and gas permits are issued. Yet even in these states, the environmental and public welfare considerations have generally been incidental to the protection of correlative rights and prevention of waste.[208]

Gradually, however, this hierarchy of priorities is changing.[209] Conservation agencies around the country, and in particular in Colorado and states overlying the Marcellus Shale, are under increasing pressure from environmental interests, municipalities, and members of the public to "afford

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[203] *Id.* at 210.

[204] 254 U.S. 300 (1920).

[205] 300 U.S. 258 (1937).

[206] *See* David Edward Pierce, "Coordinated Reservoir Development—An Alternative to the Rule of Capture for the Ownership and Development of Oil and Gas," 4 *J. Energy L. & Pol'y* 129, 159 (1983) (discussing both holdings).

[207] Cities Serv. Gas Co. v. Peerless Oil & Gas Co., 340 U.S. 179, 185 (1950).

[208] Righetti, "The Incidental Environmental Agency," *supra* note 196, at 708–09.

[209] Professor Anderson noted the shift in priorities from promotion of development to regulation of environmental impacts as early as 1985 in "New Directions in Oil and Gas Conservation Law," *Oil & Gas Conservation Law & Practice* 14-1, 14-8 (Rocky Mt. Min. L. Fdn. 1985).

greater consideration for environmental impacts."[210] The oil and gas industry's influence is waning, and agencies' governing philosophies are shifting away from promoting development and towards regulating negative environmental and aesthetic externalities. Conservation commissions and courts increasingly consider safety and environmental factors in making determinations on applications for drilling, pooling, and the like.

In *Simmers v. City of North Royalton*, for example, the Ohio Oil and Gas Commission revoked a mandatory pooling order issued by the Division of Oil and Gas Resources on the basis that the Division had not adequately considered a nonconsenting mineral owner's concerns about the operator's safety record.[211] The Ohio Court of Appeals affirmed, holding that the Commission could consider safety concerns in evaluating whether an offer for voluntary pooling, which is a prerequisite to an order of mandatory pooling under Ohio law, was just and equitable in light of the impact on the nonconsenting owner. In this case, the nonconsenting owner was a city, and the concerns involved "the negative impact of drilling activity on streets and other infrastructure," and "the safety of a municipal water supply."[212]

This trend has been accompanied by increased local controls over oil and gas development, particularly in Colorado and the Marcellus region.[213] Local control can result in a patchwork of inconsistent standards for development across individual oil and gas plays within a state, and generally undermines the authority of state-level conservation agencies in regulating oil and gas activity. Nonetheless, pressure from municipal, environmental, and citizen interest groups increasingly encourages localities to adopt limitations on oil and gas activities that are stricter than state law.[214] This tension has played out in litigation between state and local governments,[215] and jurisdictional disputes are likely to continue into the 2020s.

Citizen participation in conservation agencies' rulemaking and adjudicatory actions is also on the rise. Where state administrative procedure

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[210] Righetti, "The Incidental Environmental Agency," *supra* note 196, at 754.

[211] 2016-Ohio-3036, 65 N.E.3d 257 (10th Dist.).

[212] *Id.* ¶ 36.

[213] Heidi Gorovitz Robertson, "When States' Legislation and Constitutions Collide with Angry Locals: Shale Oil and Gas Development and Its Many Masters," 41 *Wm. & Mary Envtl. L. & Pol'y Rev.* 55, 59 & nn.6–7 (2016); *see generally* Alex Ritchie, "On Local Fracking Bans: Policy and Preemption in New Mexico," 54 *Nat. Resources J.* 255 (2014) (discussing state preemption of local efforts at regulation).

[214] *See* Ritchie, *supra* note 213, at 255–60 (discussing various "community rights" ordinances adopted across the country).

[215] *E.g.*, Robinson Twp. v. Commonwealth, 83 A.3d 901, 999–1000 (Pa. 2013) (litigating the constitutionality legislation to preempt local control of development).

acts permit them, petitions for rulemaking brought by citizens have risen sharply.[216] Citizen groups have initiated new surface setback and notification rulemakings in Colorado, Montana, and Wyoming through this process.[217] In Kansas, individual citizens are inserting themselves into the adjudicatory process by protesting applications for injection authority for saltwater disposal wells.[218]

[3] Colorado Reaches the Tipping Point

[a] *COGCC v. Martinez*

On January 14, 2019, the Colorado Supreme Court issued its decision in *COGCC v. Martinez*,[219] upholding the priority status of waste prevention and correlative rights protection over environmental regulation under Colorado's Oil and Gas Conservation Act.[220] The case arose when the respondents, youth environmental activists, proposed a rule to the Colorado Oil and Gas Conservation Commission (COGCC) that would have precluded issuance of any permits for new oil or gas wells "unless the best available science demonstrates, and an independent, third-party organization confirms, that drilling can occur in a manner that does not cumulatively, with other actions, impair Colorado's atmosphere, water, wildlife, and land resources, does not adversely impact human health, and does not contribute to climate change."[221]

The COGCC declined to engage in the rulemaking, in part because it would have required the COGCC to readjust its statutory priorities under the Oil and Gas Conservation Act, which historically prioritized preventing waste and protecting correlative rights above regulating environmental externalities of the industry. The Colorado Supreme Court upheld the COGCC's decision, interpreting the Act to require the COGCC first "to foster the development of oil and gas resources, protecting and enforcing the rights of owners and producers," and second, "in doing so, to prevent and mitigate significant adverse environmental impacts to the extent necessary to protect public health, safety, and welfare, but only after taking into consideration cost-effectiveness and technical feasibility."[222]

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[216] Righetti, "The Incidental Environmental Agency," *supra* note 196, at 715–16.

[217] *Id.* at 719–21.

[218] Celia Llopis-Jepsen, "Flint Hills Residents Expand Effort to Block Saltwater Injection Wells," *KCUR* (Oct. 2, 2017).

[219] 2019 CO 3, 433 P.3d 22.

[220] Colo. Rev. Stat. §§ 34-60-101 to -131.

[221] *Martinez*, 2019 CO 3, ¶ 7.

[222] *Id.* ¶ 41.

Accordingly, the court upheld the COGCC's ruling that it lacked the statutory authority to condition oil and gas development on preservation of public health and the environment. The court also relied on the fact that COGCC was already working with the state's environmental agency to address many of the respondents' concerns.

[b] Senate Bill 19-181

Immediately following the court's decision in *Martinez*, in April 2019 Colorado's legislature passed and its governor signed SB 19-181. The legislation requires the COGCC to, among other significant things, prioritize preservation of public health and the environment over resource development. SB 19-181 does so, in part, by expressly incorporating language into the Oil and Gas Conservation Act that makes oil and gas production "subject to the protection of public health, safety, and welfare, the environment, and wildlife resources and the prevention of waste . . . ."[223]

The provisions of SB 19-181 are too sweeping and expansive to summarize succinctly here. In its 30 pages, SB 19-181 amended or codified 20 separate sections of the Colorado statutes, necessitating at least 12 new rulemakings to implement. It will have to be left to other work to fully analyze and critique the legislation and its implementing regulations. The goal here is merely to highlight the changes that are most significant and that seem likeliest to impact oil and gas law in the 2020s. To this end, the key provisions are distilled into three categories: (1) the COGCC's shift in priorities (or "mission change," as the COGCC calls it), (2) the reconstitution of COGCC commissioners, and (3) empowerment of local regulation of oil and gas development.

[i] Mission Change—From "Fostering" to "Regulating" Development

The COGCC refers to the provisions of SB 19-181 that relate to reprioritizing environmental considerations over waste prevention and correlative rights protection as its "mission change."[224] The principal provisions of SB 19-181 mandating this mission change are found in sections 6, 7, and 12. Section 6 amends the Oil and Gas Conservation Act's legislative declaration to subordinate the efficient production of hydrocarbons to the protection of public health, safety, and welfare, including protection of the environment and wildlife resources.[225] Previously, the declaration spoke of

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[223] Colo. Rev. Stat. § 34-60-102(1)(b).

[224] *See* COGCC, "Mission Change White Paper," at 13 (Nov. 1, 2019).

[225] Colo. Rev. Stat. § 34-60-102(b).

the COGCC's responsibility to "foster, encourage and promote" oil and gas development.[226]

The declaration now states that "[i]t is the intent and purpose of this article 60 to permit each oil and gas pool in Colorado to produce up to its maximum efficient rate of production, subject to the protection of public health, safety, and welfare, the environment, and wildlife resources," as well as the prevention of waste and protection of correlative rights.[227] This change abrogates *Martinez*, and is the conceptual heart of the law. It generally does not prohibit oil and gas development, except where the development would harm the public health, safety, welfare, the environment, or wildlife.

Section 7 amends the definitions section of the Oil and Gas Conservation Act, Colo. Rev. Stat. § 34-6-103, in a number of important ways. Previously, the section defined "waste" to include a diminution in the quantity of oil or gas that ultimately may be produced from a reservoir. Section 7 amends the definition of waste to add that waste "[d]oes not include the nonproduction of oil or gas from a formation if necessary to protect public health, safety, and welfare, the environment, or wildlife resources as determined by the [COGCC]."[228]

Section 7 also amends the definition of "minimize adverse impacts."[229] This change must be read in the context of section 12, which requires the COGCC to "regulate oil and gas operations in a reasonable manner to protect and *minimize adverse impacts* to public health, safety, and welfare, the environment, and wildlife resources and . . . protect against adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations."[230]

Under the former definition of "minimize adverse impacts," the COGCC was required to "[t]ake into consideration cost-effectiveness and technical feasibility with regard to actions and decisions taken to minimize adverse impacts to wildlife resources."[231] Under the amended definition, however, the COGCC is not to consider cost-effectiveness and technical feasibility in determining whether and how to minimize adverse impacts to public health, safety, and welfare, the environment, and wildlife resources.

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[226] *Martinez*, 2019 CO 3, ¶ 32.

[227] Colo. Rev. Stat. § 34-60-102(b).

[228] *Id.* § 34-60-103(13)(b).

[229] *Id.* § 34-60-103(5.5).

[230] *Id.* § 34-60-106(2.5)(a) (emphasis added).

[231] *Id.* § 34-60-103(5.5)(d) (2018).

Additionally, section 12 requires the COGCC to adopt rules that (1) require alternate location analyses for oil and gas facilities that are proposed near populated areas; (2) evaluate and address the cumulative impacts of oil and gas development; (3) ensure proper wellbore integrity of all oil and gas production wells; (4) enable public disclosure of flowline information; (5) evaluate and determine when a deactivated flowline must be inspected before being reactivated; and (6) evaluate and determine when inactive, temporarily abandoned, and shut-in wells must be inspected before being put into production or used for injection.[232]

These amendments demonstrate the total shift in the meaning of "conservation" brought about by SB 19-181 and the resulting change in the mission of the COGCC. Gone are the days when conservation referred to efficient maximization of the resource, and here are the days, at least in Colorado, when conservation means preserving the environment from the impacts of resource utilization.

[ii] Reconstituting a Professional Commission

Sections 8 and 9 reconstitute membership on the COGCC to decrease the influence of the oil and gas industry in agency rulemakings and adjudications. The nine-member commission previously included the executive directors of the Colorado Departments of Natural Resources and Public Health and Environment, three members with substantial experience in the oil and gas industry, and one member with training or experience in environmental or wildlife protection.

Effective no later than July 1, 2020, section 9 replaces this commission with five "professional" members—one with substantial experience in the oil and gas industry; one with substantial expertise in planning or land use; one with formal training or substantial experience in environmental protection, wildlife protection, or reclamation; one with "professional experience demonstrating an ability to contribute to the [COGCC's] body of expertise that will aid the [COGCC] in making sound, balanced decisions"; and one with formal training or substantial experience in public health.[233] Section 9 further prohibits any person to be appointed who has a conflict of interest with the oil and gas industry, such as former lobbyists or advocates for industry or environmental interest groups.[234]

The makeup of the COGCC under prior law reflected the importance of oil and gas technical expertise in administering a conservation regime

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[232] *Id.* § 34-60-106(11)(c), (18), (19).

[233] *Id.* § 34-60-104.3(2)(c).

[234] *Id.* § 34-60-104.3(2)(d).

primarily focused on maximizing efficient utilization of the state's oil and gas resources. The newly constituted COGCC, in contrast, reflects the agency's mission change by decreasing the proportion of industry experts and increasing the proportion of environmental and land-use planning experts.

[iii] Enabling Local Control

Many of SB 19-181's provisions are intended to empower local governments to regulate oil and gas development in their localities. Section 4 amended Colo. Rev. Stat. § 29-20-104(1) to authorize each local government within its respective jurisdiction to "minimize adverse impacts to" public health, safety, and welfare, and the environment, and to regulate the surface impacts of oil and gas development through land-use regulation. Specifically, matters that local governments may regulate include the locations and siting of facilities; water use; control of noise, vibration, odor, light, dust, air emissions, and air quality; surface reclamation; cultural resources preservation; emergency preparedness; control of traffic and transportation impacts; operators' financial security, indemnifications, and insurance; and "[a]ll other nuisance-type effects of oil and gas development."[235] Local controls are generally allowed to be more restrictive than state regulations.[236] Local governments also received authority to inspect facilities, impose fines, and collect fees to cover their direct and indirect costs of permitting, monitoring, and enforcement.[237]

SB 19-181 also sets up a process by which either a local government or an aggrieved oil and gas operator may request COGCC review of the local government's determinations affecting the operator. Upon such a request, section 10 requires the COGCC to appoint a board of technical reviewers to address the disputed issues, but the board "[m]ust not address the economic effects of the" local government's determination.[238]

SB 19-181's goal of increasing local control over oil and gas development is not always consistent with its goal of prioritizing environmental and public safety over development, as two pending lawsuits demonstrate. Weld County and a coalition of rural counties are separately suing the state to vacate regulations on methane emissions promulgated by the Colorado

[235] *Id.* § 29-20-104(1)(h).

[236] *Id.* § 34-60-131.

[237] *Id.* § 29-20-104(2).

[238] *Id.* § 34-60-104.5(3)(b)(II).

Air Quality Control Commission (AQCC) pursuant to SB 19-181.[239] The complaints allege that the AQCC failed to afford the counties' concerns over the methane rules the special level of priority that local governments are to receive under the law.[240] The counties' concerns in these cases are that the proposed regulations would disproportionately impact the counties' economies and tax revenues by decreasing oil and gas production.[241]

These pending suits illustrate the double-edged sword that is local control over oil and gas regulation. The counties, like Weld County, where most oil and gas production takes place tend to prefer fewer and laxer restrictions on environmental and aesthetic impacts, especially when those counties are also rural. The counties with the strongest interest in regulating oil and gas impacts, on the other hand, tend to be urban and have little or no production. Consequently, granting discretion over oil and gas regulation to municipalities as a means of tightening restrictions can cut both ways.

[iv] Rulemakings

SB 19-181 applies to all conduct pending before the COGCC on and after April 16, 2019. Full implementation of the law will require 12 new rulemakings. The director of the COGCC issued guidance on the criteria by which the agency will evaluate applications submitted in the meantime. Functionally, when any application satisfies one of these criteria, the application will be evaluated in light of the mission changes required under SB 19-181 and denied if inconsistent.

According to the COGCC's director, the goal of the rulemakings is to develop rules that move the agency's governing paradigm from "foster" to "regulate," and that regulate in a way that first avoids, then minimizes and mitigates, adverse impacts on the environment.[242] The director's stated goal in the rulemakings is to strike a "neutral framework" that does not advantage oil and gas operators.[243]

The rulemaking to implement the mission change is quite broad, and includes amendments that are not specifically called for in SB 19-181. For instance, the COGCC's draft amendments include expansion of the definition of an "affected person" for purposes of determining standing to protest

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[239] *See* Bd. of Cty. Comm'rs of Weld Cty. v. Hunsaker Ryan, No. 2020CV31022 (Colo. Dist. Ct. filed Mar. 13, 2020); Bd. of Cty. Comm'rs of Garfield Cty. v. Air Quality Control Comm'n, No. 2020CV30997 (Colo. Dist. Ct. filed Mar. 17, 2020).

[240] Complaint at 2, *Bd. of Cty. Comm'rs of Weld Cty.*, No. 2020CV31022.

[241] *Id.*

[242] Jeff Robbins, COGCC, "Insights into COGCC Rulemaking from 30,000'," at 3–5 (Aug. 21, 2019).

[243] *Id.* at 18.

applications, including permitting and spacing applications. The purpose of these changes (to Rule 509) is to expand standing for members of the public, remove constraints on how the public may provide comments, and implement a "neutral" regulatory framework so that no party—industry, the public, or government entity—has an advantage in any COGCC proceeding.[244] Another example is Rule 603.f, which is proposed to prohibit the storage, placement, or maintenance of equipment, vehicles, trailers, commercial products, chemicals, drums, totes, containers, materials, and all other supplies not necessary for use on an oil and gas location.[245]

[c] Effects on Colorado's Industry

It would be natural to expect such regulatory changes to seriously harm the Colorado oil and gas industry. Indeed, some blamed SB 19-181 for several significant layoffs in fall 2019, and one company blamed the law when it filed for bankruptcy in 2019.[246] Yet larger producers do not appear concerned. Noble Energy, Inc., for instance, claims to have enough drilling permits in hand to sustain it in the midterm without needing to comply with SB 19-181's additional restrictions.[247] It may not be surprising, then, that oil and gas production in Colorado is increasingly dominated by just a few large players. In 2019, the state's top eight operators (out of nearly 200) accounted for 81% of the production.[248]

Large operators appear to have another advantage in Colorado's regulatory environment: sophisticated public relations. "Large companies are changing their approach in Colorado, recognizing it won't be drilling technology leading to improved production that sets them apart . . . . The thing that differentiates companies is how sophisticated they are in dealing with the social reality that they live and work in."[249]

[4] Implications for the Future of Conservation Law and Practice

While most producing states may never overhaul their conservation laws like Colorado has with SB 19-181, the broad trends in conservation law are fairly clear: greater focus on regulating the impacts of oil and gas

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244 *Id.* at 8, 15–18.

245 *See* 2 Colo. Code Regs. § 404-1:603.f.

246 Hayley Sanchez, Ben Markus & Carl Bilek, "People Are Arguing About What Oil and Gas Layoffs Mean Right Now. Here's What to Know," *CPR News* (Oct. 11, 2019); Ben Markus, "All Systems Go for Colorado Oil and Gas, Despite Crackdown Efforts," *CPR News* (Oct. 2, 2019).

247 Markus, *supra* note 246.

248 *Id.*

249 *Id.* (internal quotation marks omitted).

development on the environment, wildlife, public health and safety, and municipalities; less attention to cost-benefit analysis and technical feasibility in determining when and how to mitigate impacts; increased local regulation of siting and nuisance-control aspects of development; and a narrower role for industry in rulemaking and adjudicatory proceedings. These trends will impact the oil and gas industry in many ways, including by incentivizing consolidation to take advantage of economies of scale in regulatory compliance and public relations.[250]

Although it is clear that the reach of conservation agencies in environmental and aesthetic matters is expanding, it is not clear where the outer limits of the expansion might be. It is hard to predict what additional negative externalities of oil and gas production might be brought within agencies' jurisdictions during the next decade. For example, governments and the public are increasingly critical of the industry's impact on human rights, and in particular human trafficking.[251] In February 2020, the Bureau of Land Management (BLM) included human rights recommendations in its final environmental analysis of an oil and gas operator's proposed operations on federal lands.[252]

BLM's analysis noted "well-documented spikes in crime rates near oil field developments and included statistics relating to Native communities' vulnerability to crime from non-Natives," and noted that Native American women are especially vulnerable.[253] BLM's recommended safeguards "include employee screening and background checks, law enforcement coordination, employee training, internal policing, and victim services."[254] It seems possible that state conservation agencies could see their jurisdiction expanded to include similar issues in the coming years.

These trends raise another question—what will the practice of oil and gas conservation law look like over the next 10 years? Even where not expressly provided by statute, considerations of surface and environmental impacts and public health and safety will be relevant in adjudications. Building a record on even seemingly mundane applications for drilling, spacing,

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[250] Professor Pierce has predicted the fiercest opponents of increased regulation would be small operators, "who would fear, legitimately in many cases, that development will become dominated by the larger operators." David E. Pierce, "Minimizing the Environmental Impact of Oil and Gas Development by Maximizing Production Conservation," 85 *N.D. L. Rev.* 759, 775 n.62 (2009).

[251] Office to Monitor & Combat Trafficking in Persons, U.S. Dep't of State, "The Link Between Extractive Industries and Sex Trafficking" (June 2017).

[252] Heather Richards, "BLM Tells Oil Firm to Protect Native American Women," *Energywire* (Mar. 6, 2020).

[253] *Id.*

[254] *Id.*

pooling, injection authority, and the like may increasingly require a wide array of technical and scientific evidence on such things as seismicity, air, water, and soil contamination; noise, odor, traffic, and dust abatement; and worker and public safety.

It is conceivable that commissions may even become interested in evidence pertaining to an applicant's *social* license to operate within the relevant community.[255] One can imagine counsel eliciting testimony from the applicant's public relations department regarding steps the applicant has taken to address public concerns over safety, human health, aesthetics, and the environment.

Oil and gas lawyers have long needed a multidisciplinary skill set. Traditionally, the extra-legal skills in that set included petroleum-related geology, engineering, and accounting. In the coming decade, lawyers may need to develop skills relating to public relations, community organizing, and social media relations to successfully advise oil and gas clients in the new era of conservation law.

§ 5.06 Oilfield Takings—A Theme of the 2020s?

[1] Introduction

If the above prognostications hold true, courts and legislatures in the coming decade will define and redefine the extent of many property and contract rights and liability rules to accommodate new policy aims and energy philosophies. Changes in property, contract, and tort rules often raise constitutional concerns under the Due Process and Takings Clauses. In this sense, the prediction that oilfield takings will be a theme of oil and gas law in the 2020s is not as much an independent prognostication as it is a necessary implication of the foregoing predictions.

This section will begin by summarizing the relevant constitutional framework and then will attempt to demonstrate, in summary fashion, how the predicted changes in the laws of pore space, produced water, surface use, and oil and gas conservation might implicate the constitutional limitations imposed by the Takings Clause.

[2] Takings Law—A Brief Review

The Takings Clause of the Fifth Amendment to the U.S. Constitution provides: "nor shall private property be taken for public use, without just compensation."[256] The Takings Clause limits state power to take private property both explicitly through the exercise of the eminent domain power

[255] *See generally* Kristen van de Biezenbos, "The Rebirth of Social License," 14 *McGill J. of Sustainable Dev. L.* 157 (2018) (discussing "social license to operate").

[256] U.S. Const. amend. V.

and implicitly through regulation. The threshold question in any takings analysis, of course, is whether the government has taken "private property." The definition of "property" is left to state law.[257] Whether the government's actions constitute a compensable "taking" is generally determined under the following framework of U.S. Supreme Court precedent.

As an initial matter, the Takings Clause does not apply to the exercise of police power intended to control nuisances or prevent harm to the legal rights of others.[258] Property rights to develop minerals do not include the right to waste the resource, violate correlative rights, or create public or private nuisances.[259] Thus, regulation of common law nuisances, waste, and violations of correlative rights do not take any property right and require no compensation.

When property regulation is not purely for nuisance control, it must satisfy the Takings Clause. The clause itself places two constraints on state actions—they must be for "public use" and the government must pay "just compensation." The Court has construed the public use requirement broadly. Though the requirement prohibits the taking of property from one private person solely to transfer it to another private person, such a transfer is permissible if its purpose is to benefit the public.[260] Under *Kelo v. City of New London*, courts generally find that a taking satisfies the public use requirement if it serves any legitimate public purpose and its means are not irrational.[261]

Where the government limits private property implicitly by regulation, the central issue usually is not whether the action complied with the Takings Clause's express requirements, but whether a taking occurred at all. Certain types of regulation have been held to be takings per se. In *Loretto v. Teleprompter Manhattan CATV Corp.*, the Court held that permanent physical occupations of property authorized by the government are takings per se, no matter how insignificant.[262] Likewise, as the Court held in *Lucas v. South Carolina Coastal Council*, legislation that destroys all economically beneficial or productive use of property is also a per se taking.[263]

It is more difficult to determine whether a taking has occurred when regulation falls short of physically occupying the property or destroying

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[257] Bd. of Regents of State Colleges v. Roth, 408 U.S. 564, 577 (1972).

[258] Thomas W. Merrill, "The Economics of Public Use," 72 *Cornell L. Rev.* 61, 70 (1986).

[259] Tenneco Oil Co. v. El Paso Nat. Gas Co., 687 P.2d 1049, 1053 (Okla. 1984).

[260] Kelo v. City of New London, 545 U.S. 469, 477–78 (2005).

[261] *Id.* at 488.

[262] 458 U.S. 419, 425–26 (1982).

[263] 505 U.S. 1003, 1015 (1992).

its economic value. In these cases, courts engage in ad hoc, fact-specific inquiries to determine whether the regulation "goes too far" and "will be recognized as a taking."[264] Courts also apply the factors test of *Penn Central Transportation Co. v. City of New York*, which examines "[t]he economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations," and the "character of the governmental action."[265] Actions that merely adjust "the benefits and burdens of economic life to promote the common good" or leave the property with some residual economic value generally do not constitute takings.[266]

In summary, government action violates the Takings Clause where it limits an owner's recognized property interest and (1) does not advance a legitimate public interest, (2) causes a permanent physical occupation of the owner's property, (3) denies the owner all economically viable use of property, or (4) satisfies the ad hoc factors test of *Penn Central*.[267]

[3] Applying a Takings Analysis to Our Prognostications

[a] Pore Space Property Rights

In the context of pore space property rights, takings issues are likely to arise as states seek to limit use of pore space by private owners. The following discussion focuses on one such example that our prognosticators believe could ripen into a takings challenge in the 2020s. The New Mexico State Land Office (SLO) now requires a per-barrel fee for any injection occurring within one-half mile of state-owned lands. The SLO executes this policy by protesting applications for new injection wells filed with the OCD, and then withdrawing the protest on the condition that the applicant compensate the state for migration of disposed water into state-owned pore space.[268] According to the SLO, the purpose of the policy is to protect state-owned property from uncompensated use.[269] While New Mexico's policy appears to be unique, the following analysis may provide a template for analyzing takings challenges of a broader array of pore space regulations in the 2020s.

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[264] Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).

[265] 438 U.S. 104, 124 (1978).

[266] *Id.*

[267] Lowe, *supra* note 174, § 4.04[3].

[268] Email from Drew Cloutier to Joseph Schremmer (Nov. 5, 2019) (on file with author).

[269] *See generally* Ari Biernoff, General Counsel, SLO, Presentation at the State Bar of New Mexico Oil and Gas Law in New Mexico CLE, "What's New at the State Land Office in Oil & Gas" (Dec. 4, 2019).

Determining the constitutionality of New Mexico's policy requires two lines of analysis. The first considers whether the policy is justified by the state's rights as owner of the pore space or its police power to control nuisances. The second questions whether the policy, if not so justified, constitutes a regulatory taking.

First, the state may argue that, as an owner of pore space, it is entitled to compensation for invasion of its pore space by injected wastewater. This raises the question of whether the state, as pore space owner, has the right to exclude migrating injectate from its subsurface pore space. As noted previously, a pore space owner generally does not have the right to exclude physical subsurface invasions, except where it would cause actual physical harm to the owner's existing reservoir operations, or otherwise deprive the owner of the opportunity to use the reservoir for like purposes.[270]

Thus, to allege an actionable nuisance or subsurface trespass for wastewater migration under state-owned lands, the state would need to show that the wastewater caused physical damage to its property or deprived it of the opportunity to use its pore space for similar purposes, i.e., waste disposal.[271] Otherwise, the mere migration of wastewater under state-owned lands would not be tortious, and the state's policy would be outside the scope both of its rights as a pore space owner and its power to control nuisances without compensation.[272]

This takes us to the second question—whether the policy constitutes a regulatory taking of operators' property. An operator challenging the policy must first show that the state's policy limits a cognizable property interest. Just as ownership of pore space generally does not entitle the owner to exclude subsurface invasions, ownership includes the right to inject produced water into the underlying pore space, even if it invades the subsurface of adjoining land.[273] The right to inject into shared reservoir space underlying adjoining land is, properly considered, a property interest under state law.[274]

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[270] *See* Schremmer, "Pore Space Property," *supra* note 9; § 5.02[3][b], *supra*.

[271] Mongrue v. Monsanto Co., No. 2:98-cv-02531, 1999 WL 970354 (E.D. La. Oct. 21, 1999), *aff'd*, 249 F.3d 422 (5th Cir. 2001).

[272] It should be noted that New Mexico, like other producing states, holds that a regulatory permit to inject wastewater does not immunize the injector from tort liability to third parties. *See* Snyder Ranches, Inc. v. Oil Conservation Comm'n, 798 P.2d 587, 590 (N.M. 1990).

[273] *See* § 5.02[3][b], *supra*.

[274] *See* Richard A. Epstein, *Takings: Private Property and the Power of Eminent Domain* 96–98 (1985) (explaining that common law liability rules for trespass and nuisance are tantamount to property rights).

Next, an operator must show that the policy constitutes a regulatory taking. The state's policy clearly does not cause a per se taking, as it does not occupy the operator's property or entirely destroy its economic value. The policy even falls short of prohibiting certain uses of private property. Rather, the policy merely conditions operators' right to seek a permit for underground injection on the payment of fees to the state that do not relate to the administration or purpose of the Underground Injection Control program.[275] In this sense, it functions like a tax.[276]

If the policy were analyzed as a possible regulatory taking under *Penn Central*, it is difficult to predict exactly what factors a court would consider and how it would weigh them. Certainly, the policy has a negative economic effect on operators. But depending on the amount of compensation the Land Office requires in any given case, it probably would not completely frustrate an operator's distinct investment-backed expectations or destroy most of the value of the operator's disposal well or lease. Alternatively, an operator challenging the policy might argue that it should fail because it does not advance a legitimate public interest, but considering that the policy results in money flowing into public coffers, this line of attack would likely fail under the extremely deferential precedent of *Kelo*.

[b] Produced Water Legislation

As detailed above, state regulation of ownership, recycling, and beneficial use of produced water is likely to proliferate in the 2020s. If the produced water statutes recently passed by Texas and New Mexico are any indication, this regulation may depart from several background principles of the common law and western water law.[277] As changes to background property rules often do, these statutory modifications raise constitutional questions. The following discussion analyzes the takings implications raised by the Texas statute.

Under common law rules, produced water in Texas is likely the property of the owner of the overlying surface estate. However, in 2013 the legislature adopted section 122.002 of the Texas Natural Resources Code, which provides that fluid oil and gas waste, which would include produced water, becomes the property of the person who takes possession of it for purposes

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[275] *See* 42 U.S.C. §§ 300f to 300j-26.

[276] The SLO does not appear to have statutory authority for imposing such a tax, which might render the policy ultra vires without resorting to a takings challenge. *Cf.* Billy Oil Co. v. Bd. of Cty. Comm'rs, 732 P.2d 737, 740 (Kan. 1987) (invalidating fee charged by a county for drilling new wells that so exceeded what was needed to cover costs of administration that it constituted an illegal tax).

[277] *See* § 5.03[4][c]–[d], *supra*.

of treating it for a subsequent beneficial use.[278] The statute appears to divest a surface owner of title to connate salt water produced from the owner's land and transfer it to the person who "takes possession of it for the purpose of treating [it] for subsequent beneficial use."[279] Under the statute, any commercial value produced water may have belongs to the producer, rather than the owner of the site where it was originally produced.

Whether this transfer is a taking depends on its economic impact on the claimant's property interest, which turns on how the claimant's property interest is defined.[280] If the claimant's regulated property interest is defined narrowly to include only rights in produced water itself, the forced transfer of ownership would destroy all economically viable uses of the property and should constitute a per se taking. If, however, the claimant's property interest is defined broadly to include the entire surface estate of land, or even just a severed groundwater estate, the loss of produced water—only a single constituent part of the estate—would not destroy all economically viable uses of the remaining property. In these cases, courts will apply the *Penn Central* test to balance the economic impact of the statute on the owner's investment-backed expectations with the public purpose of the legislation.[281] Where the estate retains some residual value, the statute probably would not constitute a taking.[282]

Courts tend to define the scope of the regulated property interest broadly, such that the property interest at stake in most cases will be not the produced water itself, but the larger estate.[283] Consequently, most courts would not find a taking in most cases.

If it is determined that section 122.002 effects a taking of a claimant's property, the next question is whether the taking satisfies the public use requirement. Forced transfers of property from one private person to another are generally impermissible, except where they serve to further a legitimate public interest.[284] Here, it may be said that section 122.002 incentivizes beneficial use of produced water and reduces demands on scarce freshwater resources. Under prevailing precedent, such would likely be a legitimate public purpose. Moreover, the means to accomplish this

[278] Tex. Nat. Res. Code Ann. § 122.002.

[279] *Id.*

[280] *See* Kramer, "Multiple Surface Use Issues," *supra* note 14, at 340–41.

[281] *Id.* at 127.

[282] Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 137–38 (1978).

[283] *Id.* at 130 ("'Taking' jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated.").

[284] Kelo v. City of New London, 545 U.S. 469, 477 (2005).

purpose—by vesting title in those who take possession and liability for produced wastewater for the purposes of treating it for beneficial use—is clearly rationally related to this purpose. There would be little difficulty in finding that section 122.002 satisfies the public use requirement. If a taking is found, it must be compensated even if it satisfies a public purpose. Thus, just compensation should be paid to the surface or groundwater owners whose title to produced water is divested.

[c] Surface Rights Legislation

As discussed above, prominent oil and gas scholars predict that legislatures in the 2020s, at the behest of oil and gas interests, may consider granting surface owners statutory rights to participate in the profits of development on their land.[285] The previous generation of surface rights legislation, surface damage acts, withstood takings challenges. The following discusses this case law and how it might apply to participation acts.

The few courts that heard constitutional challenges to state surface damage acts, based on the Takings Clause, Contracts Clause, and substantive due process, uniformly upheld them.[286] *Murphy v. Amoco Production Co.*, upholding North Dakota's Surface Owner Protection Act, is emblematic.[287] Amoco Production Co. (Amoco) argued that the Act's imposition of strict liability for surface damages resulting from mineral development violated the Contracts Clause by modifying Amoco's existing obligations under its surface-use agreement with the surface owner, that it constituted a taking of Amoco's implied easement rights without just compensation, and that it violated Amoco's substantive due process rights because it did not advance a legitimate public interest.

Amoco's Contracts Clause argument failed because, the court held, the impairment of Amoco's rights not to pay compensation for reasonable use of the surface was too minor to warrant compensation.[288] Its takings challenge failed because the court did not consider Amoco's implied easement rights to be property and, thus, the statute did not take anything from Amoco.[289] Finally, Amoco brought a substantive due process claim, arguing that because there was no requirement that the damages paid to the surface owner actually be used in restoring the surface, the Act did not substantially advance a legitimate public interest. The court nonetheless upheld

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[285] *See* § 5.04[3][b], *supra*.

[286] *E.g.*, Davis Oil Co. v. Cloud, 766 P.2d 1347 (Okla. 1986) (upholding Oklahoma's act); *see also* Kramer, "Multiple Surface Use Issues," *supra* note 14, at 338–41 (discussing cases).

[287] 729 F.2d 552 (8th Cir. 1984).

[288] *Id.* at 557.

[289] *Id.* at 558.

the statute against Amoco's substantive due process attack under rational basis scrutiny, finding that North Dakota reasonably believed these types of transfer payments created an incentive for the mineral operator to not cause unnecessary surface damage.[290]

Murphy has its critics.[291] As Professor Bruce Kramer has persuasively demonstrated, Amoco's rights under its existing surface-use agreement were, in fact, impaired by the statute, and the implied easement rights that were reallocated by the statute in fact constitute "property."[292] Professor Richard Epstein has also demonstrated that changes in liability rules, such as modifying liability for surface use from a negligence standard to strict liability, effect cognizable takings of private property.[293]

Despite these criticisms, the U.S. Court of Appeals for the Eighth Circuit's approach in *Murphy* would likely apply to constitutional challenges against further surface-use legislation that might arise in the 2020s, including surface owner participation acts.[294] Such laws, as envisioned above, would mandate that surface owners receive a portion of mineral production or the proceeds of production from their tract. The effect of a statutorily required participation right would be to transfer private property—an interest in production—from working interest owners to surface owners.

Depending on the size of the mandated participation right, a court following *Murphy* may well find that any impairment of existing contract rights between working interest owners and surface owners, and any "taking" of property from mineral owners, is too small to justify compensation. Likewise, under *Penn Central*, participation legislation may not be considered a taking at all. Participation statutes would merely reduce the value of the mineral estate, but would not destroy it completely, and could be characterized as merely adjusting the benefits and burdens of economic life between surface and mineral owners.

Participation legislation would probably also satisfy the public use requirement. As previously noted, legislators may justify mandatory participation rights on the grounds of fairness or reducing transaction costs to enable development.[295] Either justification likely serves a legitimate

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290 *Id.* at 559–60.

291 *E.g.*, Kramer, "Multiple Surface Use Issues," *supra* note 14, at 338–41; Lowe, *supra* note 174, § 4.04[3]; Polston, "Redefining the Relationship," *supra* note 173, § 22.04[4].

292 Kramer, "Multiple Surface Use Issues," *supra* note 14, at 338–41.

293 Epstein, *supra* note 274, at 96–98.

294 *See* § 5.04[3][b], *supra*.

295 *See* § 5.04[3][b], *supra*.

public interest, as defined by *Kelo*, and thus would satisfy the public use requirement.

[d] Conservation Law Reforms

As states like Colorado reform their conservation laws to prioritize environmental and public health regulation above efficient oil and gas development, constitutional challenges based on the Takings Clause are likely to follow. The precedents upholding traditional conservation regulation will not necessarily apply to the new era of conservation laws, which primarily seek to minimize the environmental impact of development. The following discussion summarizes the traditional precedent and how modern conservation reforms may be analyzed in new cases.

Limitations on drilling and production under traditional conservation legislation are constitutional because they protect correlative rights in, and prevent waste of, common pool resources.[296] Traditional conservation regulation *enables* owners to exercise their fair opportunity to produce the reserves beneath their land by restricting any owners from excessively or unreasonably producing from the pool.[297] To the extent such conservation regulation takes property of common pool owners, it also implicitly compensates them in kind by protecting their interests from excessive and unreasonable actions of other common pool owners.[298]

These principles do not justify modern conservation reforms that prioritize environmental and aesthetic preservation over production of hydrocarbon resources. In the case of Colorado's reforms under SB 19-181, one provision that appears to raise the specter of a taking is Colo. Rev. Stat. § 34-60-106(2.5). Subsection 2.5 requires the COGCC to "regulate oil and gas operations in a reasonable manner to protect and *minimize adverse impacts* to public health, safety, and welfare, the environment, and wildlife resources and shall protect against adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations,"[299] without taking into account cost-effectiveness or technical feasibility. Read plainly, the statute authorizes oil and gas operations only if they avoid adverse impacts to the environment, no matter what it might cost to achieve such a result.

Advocates for this reform might argue that it is constitutional because it is an exercise of the state's power to control common law nuisances from oil and gas development. The common law of nuisance, however, does

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[296] *See* § 5.05[2], *supra*.

[297] *See* 1 *Summers Oil and Gas*, *supra* note 198, § 3:5.

[298] *See* Epstein, *supra* note 274, at 195–215 (discussing implicit in-kind compensation).

[299] Colo. Rev. Stat. § 34-60-106(2.5)(a) (emphasis added).

not require an owner to minimize all adverse impacts to neighboring land no matter what it might cost to do so.[300] On the contrary, nuisance law balances the costs of mitigation with the social benefit produced by the owner's activities,[301] which SB 19-181 expressly forbids. It is doubtful that this provision of SB 19-181 could be justified as merely preventing nuisances, since it seems to require much more of an operator than would the common law.

Since this provision of SB 19-181 is not a bona fide anti-nuisance regulation, it must satisfy the Takings Clause. The first question in this regard is whether the regulation constitutes a taking in the first place, and the answer depends on SB 19-181's economic impact on the rights of mineral interest owners. The costs of employing environmental and aesthetic protections to minimize or avoid impacts on air, water, soil, or biological resources could easily render proposed operations uneconomic, especially in mature and marginal fields and during a price downturn. Mineral owners and lessees may see the economic value of their mineral and leasehold interests nearly or completely destroyed, particularly if those interests are limited by the duration of production or operations and such activities are effectively impossible under SB 19-181. And, since SB 19-181 redefined "waste" so as to exclude the nonproduction of oil or gas from a formation, the COGCC has no duty to avoid such a result.[302]

Hence, as applied under certain circumstances, SB 19-181 might effect a per se taking under *Lucas* by destroying the economic value of a working interest in minerals.[303] This depends, however, on whether the mineral or leasehold interest is defined as an entirely separate estate or as merely a strand in the larger bundle of rights in the ownership of a parcel of land—the so-called "denominator problem" in takings law.[304] Supreme Court precedent on this point is not clear.

In *Pennsylvania Coal Co. v. Mahon*, Justice Holmes described the coal estate as a separate and "very valuable" estate in land, and held that legislation destroying the value of the plaintiff's severed coal estate by prohibiting subsidence of the surface constituted a taking.[305] In *Keystone Bituminous Coal Ass'n v. DeBenedictis*, however, the Court rejected a takings challenge

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300 Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1029 (1992) (explaining that state action that prohibits uses of property that would be nuisances under background principles of property and tort are not takings).

301 *Restatement (Second) of Torts* § 826 (Am. L. Inst. 1965).

302 Colo. Rev. Stat. § 34-60-103(13)(b) (redefining "waste").

303 *Lucas*, 505 U.S. at 1015.

304 *See* Kramer & Martin, *supra* note 132, § 4.05 n.97.

305 260 U.S. 393, 414 (1922).

to similar legislation, in part because it did not consider the plaintiff's severed interests in coal and surface support to be "a separate segment of property for takings law purposes," even though each was considered a distinct estate in land under state law.[306] The Court also lumped together all of the plaintiff's severed coal rights, across numerous parcels, to determine whether it was able to profitably develop any of its reserves in light of the legislation. Because most of the plaintiff's reserves remained profitable, the Court found no taking.[307]

If, as in *DeBenedictis*, a working interest owner's challenge to SB 19-181's provisions turns on the residual value of the surface estate of the land, or on the residual value of all of the owner's other mineral interests in the state, most takings claims are likely to fail. Such was the case in *Mid Gulf, Inc. v. Bishop*, where a Kansas federal court held that a municipal drilling moratorium did not destroy all economically viable uses of the tract of land at issue (including the surface and mineral interests), but only the plaintiff's oil and gas lease in the property.[308] If, instead, a court were to follow the *Mahon* approach, a takings challenge may be viable where SB 19-181's provisions render a working interest totally valueless. This was the result in *Miller Bros. v. Department of Natural Resources*, where a Michigan statute indefinitely prohibiting oil and gas drilling in a particular geographic area was held to be a taking of mineral owners' property interests.[309]

§ 5.07 The Oil and Gas Lease in Crisis

[1] Introduction

As if to underline the folly of this chapter's task, the first major legal issue of the 2020s was one nobody predicted: the global spread of COVID-19. While all of the consequences of COVID-19 for oil and gas law in the coming decade are not yet apparent, one implication seems fairly certain: the sharp downturn in oil prices, lack of crude oil storage capacity, and related market disruptions will affect the legal status of oil and gas leases. Oil and gas lawyers will spend substantial time in the coming years litigating the continuing validity of existing leases in the wake of the COVID crash, and learning to better draft new ones to avoid similar problems in the future.

Beginning in January 2020, the spread of COVID-19 and the governmental responses to control it caused a collapse in demand for oil and severe oversupply. Simultaneously, Saudi Arabia and Russia engaged in

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[306] 480 U.S. 470, 498 (1987).

[307] *Id.* at 498–500.

[308] 792 F. Supp. 1205, 1214 (D. Kan. 1992).

[309] 513 N.W.2d 217, 220 (Mich. Ct. App. 1994).

a price war, compounding the oversupply problem.[310] As a consequence, oil prices fell by more than half from January to April 2020, even trading in negative territory in April (for May delivery) due to a quirk of futures markets.[311] Forecasters expect crude prices to remain in the relatively low range of $30–$40 through 2021.[312]

In many producing regions, the COVID crash caused first purchasers to cease taking runs of crude oil, and operators were forced to shut in wells for lack of on-lease storage capacity.[313] Even where runs continued, many lessees may have hesitated to sell at historically low prices and chosen, instead, to fill their stock tanks and shut in their wells to await a better market. These problems are common in natural gas production, but are comparatively rare in the production of oil. Additionally, in this new price environment, many lessees are suddenly keen to avoid express and implied drilling obligations under oil and gas leases, operating agreements, and farmout agreements.

As a result of these severe and unusual circumstances, there is renewed focus in the oil and gas industry on contract defenses that excuse performance when it is impeded by the unforeseeable, such as force majeure clauses and commercial law doctrines of impossibility, impracticability, and frustration of purpose. In addition to these issues, the COVID downturn will lead to many of the same legal problems operators always face in down markets, like maintaining production in paying quantities to satisfy the lease habendum clause. This chapter will not discuss these relatively familiar problems, which have received ample treatment elsewhere.[314]

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[310] *See In re* Application of LPD Energy Co., No. CD 202000986, ¶ 5 (Okla. Corp. Comm'n Apr. 22, 2020) (Emergency Order 710884).

[311] *See* Sarah Hansen, "Here's What Negative Oil Prices Really Mean," *Forbes.com* (2020). Because the benchmark price that dipped into negative territory was for contracts for future deliveries in May 2020, and these contracts ultimately closed in positive territory, it is somewhat doubtful that there are large numbers of leases that actually sold oil in April for negative dollars. Nevertheless, it is possible that some lessees may seek to charge their lessors "negative royalties" for this month or set off some amount against future positive royalty payments. A similar problem has recently nagged producers in the Permian Basin who are forced to sell commingled natural gas for negative spot prices. For a discussion of negative royalties in the gas context, see Daniel Charest, "Negative Prices & Royalty Calculations," *State Bar of Tex. Oil & Gas Disputes*, ch. 3 (Jan. 9–10, 2020).

[312] *E.g.*, U.S. Energy Info. Admin., "Short-Term Energy Outlook" (2020), https://www.eia.gov/outlooks/steo/.

[313] Telephone Interview with R.A. (Dick) Schremmer, Chairman, Nat'l Stripper Well Ass'n (Apr. 28, 2020).

[314] *See generally* Bruce M. Kramer, "Lease Maintenance for the Twenty-First Century: Old Oil and Gas Law Doesn't Die, It Just Fades Away," 41 *Rocky Mt. Min. L. Inst.* 15-1 (1995); Thomas P. Battle, "Lease Maintenance in the Face of Curtailed/Depressed Markets," 32 *Rocky Mt. Min. L. Inst.* 14-1 (1986).

This section proceeds as follows. It first discusses the applicability of the commercial excuse doctrines of impossibility, impracticability, and frustration of purpose, and the temporary cessation of production doctrine, to covenants and conditions in oil and gas leases,[315] and then examines the viability of these defenses for preserving oil and gas leases from termination during the COVID crash. It then introduces the topic of force majeure clauses in oil and gas leases, discusses their applicability to the COVID crash, and summarizes the interaction between force majeure clauses and shut-in royalty provisions when the lessee loses its market for production. Finally, it examines how state emergency orders intended to preserve oil and gas leases from termination during the crash interact with the excuse doctrines and force majeure provisions.

[2] COVID-19 as an Excuse from Performance Under an Oil and Gas Lease

[a] Impracticability as a Defense to Lease Covenants and Conditions

Traditionally, contractual covenants were considered absolute, subject to no exceptions or excuses. If a party undertook a contractual obligation, it would be liable for breaching it, even if some intervening circumstance made it difficult or impossible to accomplish.[316] Under the traditional rule, contracting parties were required to foresee all consequences that could result from the agreement. "[I]f a contract became impossible to perform and the parties had failed to anticipate that eventuality, then the chips fell where they may, despite serious hardship to one party."[317] Over time, however, courts developed exceptions to the traditional rule to avoid harsh results. These exceptions find their current expression in the impracticability defenses.[318]

While technically three distinct doctrines, modern treatises aggregate the defenses of impossibility, commercial impracticability, and frustration of purpose into a single doctrine of "impracticability."[319] Their similarities

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[315] Though the discussion focuses on leases, these principles generally apply to all types of industry contracts.

[316] Fred R. Pletcher & Anthony A. Zoobkoff, "Force Majeure (and Other Useful French Profanities) in Resource Agreements," 59 *Rocky Mt. Min. L. Inst.* 17-1, 17-7 (2013).

[317] 30 *Williston on Contracts* § 77:1 (4th ed. 2020).

[318] *Id.*

[319] *Id.*

have also led courts to analyze them together.[320] Accordingly, this chapter will refer to them collectively as doctrines or defenses of impracticability.

Under the doctrine of impracticability, a party's duty to perform a contractual obligation is discharged when the party's performance is rendered impracticable[321] by "the occurrence of an event the non-occurrence of which was a basic assumption on which the contract was made."[322] Performance is not excused, however, if the supervening event is created by the obligor, or arises from the obligor's negligence.[323] The doctrine presupposes that parties are capable of addressing foreseeable contingencies in their contracts, and thus excuses only those supervening events that are *unforeseeable* at the time the contract is made.[324] Further, the fact that performance is merely made more difficult or expensive by a supervening event will not excuse performance.[325] Similarly, under the doctrine of frustration of purpose, a party is excused from performing a contractual duty where the principal purpose of the contract is substantially frustrated by the occurrence of an unforeseeable supervening event.[326]

Commercial excuse doctrines have played relatively little role in oil and gas lease disputes. Few reported cases address impracticability as a defense to termination of an oil and gas lease or breach of an express or implied covenant. Defenses based on the temporary cessation of production doctrine and lease savings clauses and force majeure clauses[327] are comparatively common. One reason that commercial excuse doctrines are not frequently raised in lease litigation is that they excuse performance of contractual covenants, but not necessarily special limitations like the typical lease habendum clause.[328]

In a typical oil and gas lease, the habendum clause defines the duration of the lease as being for a defined period of time (the primary term) and so long thereafter as oil, gas, or other substances are produced from the

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[320] *See, e.g.*, BP Chems., Inc. v. AEP Tex. Cent. Co., 198 S.W.3d 449, 459–60 (Tex. App. 2006).

[321] As the *Restatement (Second) of Contracts* notes, "[a]lthough the rule stated in this Section is sometimes phrased in terms of 'impossibility,' it has long been recognized that it may operate to discharge a party's duty even though the event has not made performance absolutely impossible." *Restatement (Second) of Contracts* § 261 cmt. d (Am. L. Inst. 1981).

[322] *Id.* § 261.

[323] *See* Stafford v. S. Vanity Magazine, Inc., 231 S.W.3d 530, 537 (Tex. App. 2007).

[324] 30 *Williston on Contracts* § 77:1.

[325] Golsen v. ONG W., Inc., 756 P.2d 1209, 1213 (Okla. 1988).

[326] 30 *Williston on Contracts* § 77:1.

[327] *See* § 5.07[3], *infra*.

[328] *See* Baldwin v. Blue Stem Oil Co., 189 P. 920 (Kan. 1920).

premises (the secondary term). The words "so long thereafter" (or similar durational language) create a special limitation on the grant of the lease, which requires continuous production of oil or gas in paying quantities.[329] If production in paying quantities ceases during the secondary term, the special limitation fails and the lease terminates automatically.[330] Since the impracticability defenses do not generally excuse the failure of special limitations or contractual conditions, they are poorly suited to defending an oil and gas lease from cancellation for failure of production in paying quantities.[331]

This point was demonstrated in *Baldwin v. Blue Stem Oil Co.*, where the Kansas Supreme Court denied the lessee's impracticability defense to the plaintiff's allegations that the lease expired for lack of production at the end of the primary term.[332] Interestingly, the lessee's defense was rooted in part on the lack of available workers due to an outbreak of disease, which, given the date of the case, may well have been the 1918 Spanish Flu.[333] The court explained: "This is not an action for a breach of contract where excuses for its nonperformance might be pleaded. It is an action to cancel leases that by their terms had expired on account of the lessee's nonperformance of their conditions."[334]

In oil and gas law, the judicial policies behind the excuse doctrines are given effect in another doctrine that can effectively suspend the special limitation of the habendum clause: the temporary cessation of production doctrine. The doctrine saves a lease habendum clause from automatic termination for cessations of production in paying quantities that are deemed "temporary," as opposed to permanent.[335] Courts generally consider three factors in determining whether a cessation is temporary: "(1) the cause of the cessation, (2) the length of time needed to regain production, and (3) the diligence of the lessee in regaining production."[336] Courts typically

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[329] Haby v. Stanolind Oil & Gas Co., 228 F.2d 298, 305–06 (5th Cir. 1955).

[330] *See* Kramer, "Lease Maintenance for the Twenty-First Century," *supra* note 314, § 15.02[2].

[331] While inapplicable to excuse the natural expiration of the habendum clause for failure of production, impracticability doctrines may nonetheless be pleaded as defenses to allegations of breach of express and implied lease covenants.

[332] 189 P. 920 (Kan. 1920).

[333] *Id.* at 920.

[334] *Id.* at 921; *accord* Aukema v. Chesapeake Appalachia, LLC, 904 F. Supp. 2d 199 (N.D.N.Y. 2012); Beardslee v. Inflection Energy, LLC, 904 F. Supp. 2d 213 (N.D.N.Y. 2012).

[335] *See* Kramer, "Lease Maintenance for the Twenty-First Century," *supra* note 314, § 15.05.

[336] *Id.* § 15.05[1].

apply the doctrine to sudden, involuntary, and unpreventable cessations, such as mechanical breakdowns.[337]

The temporary cessation doctrine is vague and difficult to predict, which routinely leads lessors and lessees to displace the temporary cessation doctrine with express lease terms that are more certain.[338] The presence of a lease savings clause may also displace commercial excuse doctrines. For example, in *Haby v. Stanolind Oil & Gas Co.*, the lessee attempted to justify a nine-month cessation of production during the secondary term of its lease with the plaintiff on the grounds that an intervening Texas Railroad Commission order limiting the legal uses of casinghead gas rendered continued production commercially impracticable.[339] The court rejected impracticability as an excuse for nonproduction because the lease provided that if production ceased "for any cause," the lessee must "commence additional drilling or re-working operations within 60 days thereafter."[340] The court thus held that the operations clause governed over any common law doctrine, and, since the lessee failed to commence such operations within the 60-day grace period, the lease expired under the habendum clause.[341]

The overlap between impracticability and the temporary cessation doctrine can be seen in a 1905 circuit court case from Ohio, *Zeller v. Book*.[342] After purchasing land subject to the lessee's oil and gas lease, the lessor sued to cancel the lease, alleging among other things that the wells had not operated "for some time."[343] The lessee's defense was that "a very heavy storm" blew down the derricks, which then caught fire and burned.[344] The court was sympathetic. Finding that "the man seems to have had one trouble upon another, and yet he has been fighting along against these difficulties and doing the best he can under the circumstances," the court excused the cessation of production and permitted Book to "continue to operate the wells."[345]

Zeller mentions neither impracticability nor the temporary cessation doctrine, yet it demonstrates the rudiments of both. The temporary

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337 *Id.*

338 *Id.* § 15.05[2].

339 228 F.2d 298, 303–05 (5th Cir. 1955).

340 *Id.* at 306.

341 *Id.* (citing Woodson Oil Co. v. Pruett, 281 S.W.2d 159 (Tex. App. 1955)).

342 18 Ohio C.D. 119 (Ohio Cir. Ct. Apr. 29, 1905).

343 *Id.* at 120.

344 *Id.* at 121.

345 *Id.*

cessation doctrine could have applied because the causes of cessation were beyond the lessee's control, the lessee acted in good faith to remove the cause of the cessation with diligence, and there was apparently no evidence of an unreasonably long interruption in operations.[346] Moreover, the lessee could have been entitled to an impracticability defense on the same facts, since his performance became impracticable due to the occurrence of a supervening event—"a very heavy storm"—that destroyed the derricks necessary for performance.[347] Ultimately, *Zeller* came to be cited as an early case in the development of the temporary cessation of production doctrine, rather than as a case of impracticability as applied to an oil and gas lease.[348]

Despite their similarity, the excuse doctrines and the temporary cessation doctrine are not identical. Impracticability requires that the supervening event be unforeseeable to the parties at the time of contracting.[349] The temporary cessation doctrine, in contrast, generally excuses relatively ordinary events, like mechanical breakdowns, that the parties are believed to have contemplated at the time of leasing.[350]

Hence, there is still room in oil and gas law for impracticability. For instance, lessees may have a viable impracticability defense to an action for breach of an express or implied lease covenant, such as an express drilling obligation or the implied duty of further development. The remainder of this section considers whether COVID-19, the Saudi-Russian price war, or the resulting interruption in oil markets constitutes an appropriate basis for a court to excuse nonproduction under both the doctrines of impracticability and temporary cessation of production.

[b] Applying Impracticability and Temporary Cessation Doctrine in the COVID Crash

The success or failure of an impracticability defense usually turns on the foreseeability to the parties, at the time of contracting, of the supervening event that caused the impracticability. To be unforeseeable, "supervening

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[346] *See* Kramer, "Lease Maintenance for the Twenty-First Century," *supra* note 314, § 15.05[1].

[347] *Restatement (Second) of Contracts* § 261 & cmt. a (Am. L. Inst. 1981).

[348] *E.g.*, Scarborough v. New Domain Oil & Gas Co., 276 S.W. 331, 336 (Tex. App. 1925); Reynolds v. McNeill, 236 S.W.2d 723, 725 (Ark. 1951).

[349] 30 *Williston on Contracts* § 77:1.

[350] Ridge Oil Co. v. Guinn Invs., Inc., 148 S.W.3d 143, 152 (Tex. 2004) (noting that "foreseeability and avoidability are not essential elements of the [temporary cessation of production] doctrine" (alteration in original) (quoting Guinn Invs., Inc. v Ridge Oil Co., 73 S.W.3d 523, 532 (Tex. App. 2002))).

effects must be substantial or cataclysmic."[351] In determining whether an operator or lessee should have foreseen a particular event, courts presume substantial knowledge of the industry[352] and global affairs,[353] as well as the current state of the law.[354]

Downturns in oil and natural gas prices are virtually always considered foreseeable.[355] Even a Saudi Arabian price war has been held to be foreseeable, precluding a purchaser's defense of impossibility to its obligations under a long-term oil purchase agreement.[356] Texas courts have gone so far as to hold that economic downturns in the oil and gas industry are foreseeable *as a matter of law*.[357] Given the expansive view of foreseeability, it is unlikely courts would find the COVID crash in oil prices, even though brought on by a near-total loss of demand, to be an unforeseeable supervening event of impracticability, excusing a cessation of production or failure to drill or complete a well under a lease covenant.

Nevertheless, lessees may find refuge in the temporary cessation of production doctrine, which does not require that an event be unforeseeable to suspend performance under an oil and gas lease. Applying the temporary cessation doctrine, some courts have held that lack of production during the secondary term of lease is excused by the *total lack* of a market.[358] Kansas courts, however, have held the opposite, often implying that the lessee could have provided for such a contingency when drafting the lease.[359] In fact, lessees routinely plan for these contingencies by including a shut-in

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[351] 30 *Williston on Contracts* § 77:11.

[352] Dunbar v. Fuller, 253 S.W.2d 684 (Tex. App. 1952).

[353] Berline v. Waldschmidt, 156 P.2d 865 (Kan. 1945) (holding that federal prohibitions on new well construction due to outbreak of World War II were foreseeable to purchaser of a defeasible term mineral interest).

[354] Wiser v. Enervest Operating, L.L.C., 803 F. Supp. 2d 109 (N.D.N.Y. 2011) (holding that New York's moratorium on hydraulic fracturing was foreseeable when lessee purchased its oil and gas leases).

[355] *E.g.*, Golsen v. ONG W., Inc., 756 P.2d 1209, 1213 (Okla. 1988).

[356] Langham-Hill Petroleum, Inc. v. S. Fuels Co., 813 F.2d 1327, 1330 (4th Cir. 1987) (holding that a sudden drop in oil prices caused by a Saudi Arabian price war did not constitute an event of force majeure in oil purchase contract).

[357] TEC Olmos, LLC v. ConocoPhillips Co., 555 S.W.3d 176, 179–80 (Tex. App. 2018).

[358] *E.g.*, Stimson v. Tarrant, 132 F.2d 363, 365 (9th Cir. 1942); Hoff v. Girdler Corp., 88 P.2d 100, 103 (Colo. 1939).

[359] Elliott v. Crystal Springs Oil Co., 187 P. 692, 694 (Kan. 1920); Collins v. Mt. Pleasant Oil & Gas Co., 118 P. 54, 56 (Kan. 1911).

royalty clause in their leases. Though relatively uncommon, shut-in royalty clauses are sometimes drafted to cover oil wells as well as gas wells.[360]

The total loss of a market for oil production may be foreseeable when parties sign a lease, but that fact should not preclude the temporary cessation doctrine from applying when it happens. Market interruptions resulting from the COVID crash are likely to be short in duration and intermittent, since they arise from a lack of storage capacity. As depressed prices lead producers to take wells offline and shelve new development prospects that would otherwise replace barrels lost to natural depletion, the crude oil stocks will gradually decline, opening up storage capacity and buoying the price. Such discrete, uncontrollable interruptions of marketing facilities fit neatly within the temporary cessation doctrine.

The trouble for many lessees is that their leases define the terms and length of excusable cessations of production and operations, thereby displacing judicial excuse doctrines. Some such lessees may find themselves in a situation like *Haby*,[361] if the loss of a market for crude oil requires a shut in that extends longer than the time allowed under the lease's operations clause. The solution to such a drafting problem going forward is more drafting. As previously noted, parties may plan for periodic interruptions in crude oil marketing by including a shut-in royalty clause that covers shut-in oil wells. Oil and gas lease drafters are likely to incorporate oil shut-in clauses more often in the 2020s, and may well innovate how they draft cessation of operations and other lease savings clauses—including force majeure provisions.

[3] COVID-19 and Force Majeure

[a] Force Majeure Clauses in General

Force majeure clauses are found in a variety of oil and gas contracts beyond leases, including operating agreements, drilling contracts, and pooling and unitization agreements.[362] This section discusses only oil and gas leases, but the general principles would also apply to these other contracts. In oil and gas leases, the purpose of a force majeure clause "is to excuse the lessee from non-performance of lease obligations when the non-performance is caused by circumstances beyond the reasonable control of the lessee, or when non-performance is caused by an event which

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[360] *E.g.*, 4 Patrick H. Martin & Bruce M. Kramer, *Williams & Meyers, Oil and Gas Law* § 631 (2020) (including examples); *see also* John S. Lowe, "Shut-In Royalty Payments," 5 *E. Min. L. Inst.* 18-1, 18-13 (1984).

[361] *See supra* text accompanying notes 338–41.

[362] 4 Martin & Kramer, *supra* note 360, § 638.

is unforeseeable at the time the parties entered the contract."[363] While this is the classic purpose of a force majeure clause, lessees often include such clauses in leases as a means of getting an extension of the primary term or an exception to the special limitation that would otherwise terminate the lease.

Though certainly not ubiquitous, force majeure provisions are commonly found in oil and gas leases.[364] Because force majeure is not a common law doctrine, but rather a type of contractual provision, the particular language employed in force majeure clauses is important. For such a clause to suspend the termination or expiration of a lease, it is imperative that it expressly excuse conditions and special limitations, like the habendum clause and "unless" delay rental clauses, as well as covenants and obligations.[365] It is also necessary for the habendum clause to incorporate the force majeure provision, either specifically or with language subjecting the habendum clause to other lease terms.[366] It is advisable for force majeure clauses to include language that specifically excuses both production and operations during an event of force majeure.[367]

Defining the events that will constitute force majeure is another important drafting concern. "While there is by no means a standard definition of *force majeure*, a typical definition will list specific events that constitute *force majeure*, usually followed by a generic or 'catch-all' phrase such as 'other events beyond the reasonable control of the parties.' "[368] In interpreting the breadth of such general or "catch-all" clauses, courts often apply the rule of ejusdem generis, which holds that when general words follow a list of specific terms, the general words will be construed as applying only to

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[363] Hydrocarbon Mgmt., Inc. v. Tracker Expl., Inc., 861 S.W.2d 427, 435–36 (Tex. App. 1993) (citation omitted).

[364] For complete discussion, see generally Pletcher & Zoobkoff, *supra* note 316; John S. Kirkham, "Force Majeure—Does It Really Work?" 30 *Rocky Mt. Min. L. Inst.* 6-1 (1984).

[365] Wiser v. Enervest Operating, L.L.C., 803 F. Supp. 2d 109, 121 (N.D.N.Y. 2011) (holding that the "unless" delay rental clause created a special limitation that was not affected by the language of the force majeure clause); San Mateo Cmty. Coll. Dist. v. Half Moon Bay Ltd. P'ship, 76 Cal. Rptr. 2d 287, 293–94 (Ct. App. 1998) (holding that force majeure clause applied only to covenants).

[366] Beardslee v. Inflection Energy, LLC, 31 N.E.3d 80, 84 (N.Y. 2015) (holding that the language of the force majeure clause did not refer to the habendum clause with specificity, and the habendum clause was not made subject to the force majeure clause).

[367] *See* Sun Operating Ltd. P'ship v. Holt, 984 S.W.2d 277, 285–86 (Tex. App. 1998).

[368] Jay D. Kelley, "So What's Your Excuse? An Analysis of Force Majeure Claims," 2 *Tex. J. Oil Gas & Energy L.* 91, 98 (2007).

items of the same kind or class as those specifically mentioned.[369] In defining terms used in a force majeure clause, courts may rely on usage of trade and the parties' course of dealing and course of performance.[370]

While contractual in nature, force majeure clauses have received a significant interpretive gloss from courts, which incorporates principles from impracticability into the application of force majeure clauses. For instance, a force majeure clause cannot be invoked to excuse performance where the force majeure event was caused by the nonperforming party or could have been prevented by such party's exercise of prudence, diligence, and care.[371] Moreover, to be excusable under a force majeure clause, certain supervening events must be unforeseeable. A few courts require that any event, even those specifically enumerated in a force majeure clause, be unforeseeable to discharge the claimant's obligations.[372] Others, including Texas courts, impose the foreseeability requirement only when a party asserts an event as force majeure that is not specifically enumerated in the express provision, but is captured by a catch-all clause.[373]

[b] Defining the COVID Crash as an Event of Force Majeure and the Role of Foreseeability

The foregoing interpretive principles play a significant role as we turn to whether the effects of COVID-19 and the Saudi-Russian price war may suspend lease conditions and covenants under force majeure clauses. Most lease force majeure clauses do not specifically cover events like the COVID-19 outbreak. Of the dozens of example clauses excerpted in the pages of the *Williams & Meyers*[374] and *Kuntz*[375] treatises on oil and gas law, only a single example (from a mid-continent lease form) specifically mentions epidemics, pandemics, quarantines, diseases, sicknesses, or contagions.[376] Thus, to establish the COVID-19 outbreak as an event of force majeure under most clauses, lessees will have to rely on catch-all or generic categories in the applicable clauses, such as "any other cause not

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[369] Maralex Res., Inc. v. Gilbreath, 76 P.3d 626, 636 (N.M. 2003).

[370] Kelley, *supra* note 368, at 100.

[371] Erickson v. Dart Oil & Gas Corp., 474 N.W.2d 150, 155 (Mich. Ct. App. 1991).

[372] *E.g.*, Gulf Oil Corp., v. FERC, 706 F.2d 444, 454 (3d Cir. 1983).

[373] *E.g.*, TEC Olmos, LLC v. ConocoPhillips Co., 555 S.W.3d 176, 184–85 (Tex. App. 2018).

[374] 4 Martin & Kramer, *supra* note 360, § 683.1.

[375] 4 Eugene O. Kuntz et al., *Kuntz, A Treatise on the Law of Oil and Gas* § 53.5 (rev. ed. 2020).

[376] 4 Martin & Kramer, *supra* note 360, § 683.1 n.33.

enumerated herein but which is beyond the reasonable control of the Party whose performance is affected."[377] Consequently, lessees would have to establish that the outbreak was unforeseeable.

But lessees are not likely to assert the pandemic as an event of force majeure. It is not COVID-19 itself, but the second- or third-order effects of the outbreak, the drastic governmental orders to control it, and an oil price war within the ranks of OPEC+ that have arguably prevented performance of lease covenants and conditions. It is the collapse in oil markets and interruptions in production runs that primarily preclude lease performance.

Many more force majeure provisions cover a "lack of market," or even a "lack of market reasonably satisfactory to Lessee for production from the premises," than cover pandemics.[378] A number of lease forms authorize suspension of operations or production when the price of products falls below specified minimums.[379] Moreover, many form clauses cover interruptions due to governmental orders, such as the government-imposed shutdowns that lead to the sharp decline in demand for oil products. COVID-related lockdown orders may not satisfy the definition of governmental orders set forth in clauses that require the event to be a "direct cause" of the interruption, since COVID orders were not the direct reason for shutting in wells. In jurisdictions that do not impose an unforeseeability requirement for enumerated events, lessees should have little difficulty in establishing that the COVID crash suspends lease obligations under clauses like these.

Force majeure clauses that do not specifically cover interruptions in marketing or governmental orders will require lessees to demonstrate that the interruptions were unforeseeable at the time of leasing. Consider, for example, *TEC Olmos, LLC v. ConocoPhillips Co.*, where the farmee asserted a force majeure clause in its farmout agreement with the farmor to excuse its delay in drilling a test well on the farmor's lease.[380] After the parties executed the farmout agreement, "changes in the global supply and demand of oil caused the price of oil to drop significantly," causing the farmee's financing for the test well to fall through and delaying commencement of operations.[381] The farmee attempted to invoke the force majeure provision to excuse its nonperformance, and the farmor disputed the clause's applicability.

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377 *TEC Olmos*, 555 S.W.3d at 179 (emphasis omitted).

378 4 Martin & Kramer, *supra* note 360, § 683.1.

379 *Id.* § 684 (collecting examples).

380 *TEC Olmos*, 555 S.W.3d at 179–80.

381 *Id.* at 180.

The terms of the clause suspended performance of obligations that were hindered or prevented "by reason of fire, flood, storm, act of God, governmental authority, labor disputes, war or any other cause not enumerated herein but which is beyond the reasonable control of the Party whose performance is affected."[382] The court agreed with the farmor that the clause did not apply to the market downturn for two reasons. First, since the alleged force majeure event was not specifically listed, the court required the event to be unforeseeable. The court held that "[*b*]*ecause fluctuations in the oil and gas market are foreseeable as a matter of law*, it cannot be considered a force majeure event unless specifically listed as such in the contract."[383]

Second, the court held that under ejusdem generis, an economic downturn in the oil and gas industry was not like the other events specifically enumerated in the force majeure clause, and thus not covered by the clause's catch-all provision. In this case, the specific events listed were "fire, flood, storm, act of God, governmental authority, labor disputes, war," and were followed by the general provision "or any other cause not enumerated herein but which is beyond the reasonable control of the Party whose performance is affected."[384]

As *TEC Olmos* demonstrates, lessees will have no success in relying on a force majeure clause to suspend performance due to a market downturn that is not specifically enumerated as an event of force majeure in the clause. A catch-all provision in a force majeure clause has little, if any, effect, as any event that is not specifically enumerated is subject to the same unforeseeability requirement as would apply under the impracticability doctrine.

[c] Interaction of Force Majeure and Shut-In Royalty Clauses

Several form force majeure clauses suspend performance for the unavailability of purchasing or transportation services.[385] Such clauses may save leases from cessations of production caused by interruptions in crude oil runs. Where applicable, these clauses may create a conflict with shut-in royalty provisions, which also excuse the requirement of actual production when a market for product is unavailable. The problem is likelier to arise

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[382] *Id.* at 179 (emphasis omitted).

[383] *Id.* at 184 (emphasis added).

[384] *Id.* at 179 (emphasis omitted).

[385] *E.g.*, Sun Operating Ltd. P'ship v. Holt, 984 S.W.2d 277, 280 (Tex. App. 1998); Welsch v. Trivestco Energy Co., 221 P.3d 609, 612 (Kan. Ct. App. 2009); Maralex Res., Inc. v. Gilbreath, 76 P.3d 626, 636 (N.M. 2003).

in natural gas production, since most shut-in royalty clauses apply only to gas wells.

Only a few cases address the interplay between a force majeure clause and shut-in royalty clause where wells are shut in for lack of a market. Most hold that where lack of production is excused under another lease savings clause, including a force majeure clause, payment of shut-in royalty is not necessary to extend the lease.[386]

In *Welsch v. Trivestco Energy Co.*, however, the Kansas Court of Appeals strongly suggested that even where a force majeure clause applies to loss of a market, the terms of a shut-in royalty clause nonetheless require payment of shut-in royalty to continue the lease.[387] The court appeared to reason that, even if the market loss was an event of force majeure, it did not causally prevent the lessee from paying shut-in royalty, and that the lease would terminate accordingly.[388]

A later federal court construed *Welsch*'s suggestion that shut-in royalty payments were not excused by a force majeure clause as mere dicta, and instead construed *Welsch* to hold that the market failure did not constitute an event of force majeure under the parties' oil and gas lease.[389] Thus, the law in Kansas, as elsewhere, appears to be that the force majeure clause may excuse even shut-in royalty payments where applicable.

[4] Effect of State Emergency Orders

The severity of the COVID crash led oil-producing states to promulgate a variety of emergency administrative orders to ease the pain of the crash on oil and gas producers.[390] Of particular interest is Emergency Order 710884 (Order 710884) of the Oklahoma Corporation Commission (OCC), which authorizes operators to shut in wells where, in the operator's opinion, production would result in economic waste. The order aims to preserve oil and gas leases on privately owned minerals across the state from termination or expiration for cessation of production or operations.[391] Order 710884 provides: "THE COMMISSION THEREFORE ORDERS that to assist in the prevention of waste, protection of correlative rights, and to optimize

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[386] *See* N. Nat. Gas Co. v. Approximately 9117 Acres, 114 F. Supp. 3d 1144, 1158 (D. Kan. 2015) (collecting cases).

[387] 221 P.3d at 617.

[388] *Id.* at 618.

[389] *N. Nat. Gas. Co.*, 114 F. Supp. 3d at 1156–59.

[390] *See generally* Mike Lee, "4 States Move to Ease Oil Pain," *Energywire* (Apr. 24, 2020).

[391] Emergency Order 710884, *In re* Application of LPD Energy Co., No. CD 202000986, ¶ 6 (OCC Apr. 22, 2020).

production, operators/producers may shut-in or curtail oil production from wells where they determine such action is necessary and warranted to prevent economic waste."[392]

If the goal of the order is to provide a safe harbor under oil and gas leases for operators to shut in their wells, it probably fails. As an administrative agency, the OCC has no authority to adjudicate private rights and obligations under oil and gas leases.[393] Indeed, paragraph 9 of the order explains that "[t]his order does not relieve any operator of otherwise complying with other existing Commission orders and rules or contractual terms of their oil and gas leases."[394] The OCC's order does not, in itself, entitle operators to a defense to a claim for termination under the habendum clause or breach of the implied covenant to market. The OCC simply lacks that authority.

To have its intended effect of preserving leases from termination, the OCC's order would need to be the type of supervening event that would excuse lease performance under impracticability or the temporary cessation doctrine or constitute an event of force majeure under a lease clause. Unfortunately for operators, each of these defenses requires that the supervening event be outside the operator's reasonable control, and the order gives operators complete, standardless discretion to shut in when they believe it is necessary to avoid waste.

Every lease obligates the operator to avoid waste in all circumstances, but the discretion to determine when production constitutes waste ordinarily lies with the OCC.[395] By delegating that discretion to individual operators, without providing any standards or criteria for exercising the discretion, the OCC's order guarantees that any decision to shut in for waste would be in the operator's control. Moreover, force majeure provisions that specifically list governmental action as an event excusing performance generally phrase such action in terms of mandatory orders, rules, or regulations, which the OCC order is not.

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[392] *Id.* at 3. On June 3, 2020, the OCC extended the order through August 10, 2020. Interim Order 711992, *In re* Application of LPD Energy Co., No. CD 202000986 (OCC June 3, 2020).

[393] *See* Tenneco Oil Co. v. El Paso Nat. Gas Co., 687 P.2d 1049, 1053 (Okla. 1984) (holding that the "[r]espective rights and obligations of parties are to be determined by the district court" and are not within the jurisdiction of the OCC).

[394] Emergency Order 710884, *supra* note 391, ¶ 9; *see also* Dissent of Commissioner Bob Anthony in Order 710884, *In re* Application of LPD Energy Co., No. CD 202000986 (OCC May 8, 2020) (noting the OCC's lack of jurisdiction).

[395] *See Tenneco*, 687 P.2d at 1053 (noting that no oil and gas lease may permit the lessee to commit waste); *see also* Dissent of Commissioner Bob Anthony, *supra* note 394.

Because the OCC order leaves it to the discretion of operators whether to shut in or curtail oil production from wells, there is a serious question whether any operator that does so may subsequently claim impracticability, temporary cessation, or force majeure. Accordingly, operators should be cautious in relying on the OCC's order to shut in wells.

§ 5.08 Conclusion

Only time will tell the truth of these prognostications. Perhaps the best a crystal gazer can realistically hope for is that his predictions are forgotten. Come what may, there are certain truths about the law that are sure to endure into the future. One such truth is that the common law principles of property, contract, and tort that undergird oil and gas law will evolve, slowly and incrementally, to address whatever unknowable facts and circumstances the future holds. Another truth is that lawyers practicing in the field of oil, gas, and mineral law will need more than just legal skills to succeed—notwithstanding the difficulty in predicting which particular tools will need to be added to the lawyer's multidisciplinary tool belt.