

GROUNDWATER (Mis)MANAGEMENT

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GROUNDWATER (MIS)MANAGEMENT IN ARIZONA AND TEXAS

PART I

GROUNDWATER LAW IN ARIZONA

INTRODUCTION

Arizona's bifurcated system of water law administers separate rules for surface water and groundwater: prior appropriation governs surface water rights while reasonable use (or the "American Rule,") governs groundwater rights. While the law defines "groundwater" as water under the surface of the earth regardless of the geologic structure in which it is standing or moving, a common law distinction treats "subflow" as appropriable surface water.¹ Subflow is "those waters which slowly find their way through the sand and gravel constituting the bed of the stream, or the lands under or immediately adjacent to the stream, and are themselves a part of the surface stream."²

Until state legislators passed the Groundwater Management Code (the Code) in 1980, the Arizona Supreme Court predominantly fashioned the state's water policy. However, court has since been reluctant to play its historically critical role in shaping the legal rights associated with groundwater. The court prefers to defer to the legislature, because "[r]egulation of water use...in a desert state, does not lend itself to case-by-case definition...Accordingly, we must look to the legislature to enact the laws they deem appropriate for wise use and management of what may be a valuable water resource for Arizona."³

¹ Ariz. Rev. Stat. Ann. § 45-101.

² *Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source*, 989 P.2d 739, 743 (Ariz. 1999) (quoting *Maricopa County Mun. Water Conservation Dist. No. 1 v. S.W. Cotton Co.*, 4 P.2d 369, 380 (Ariz. 1931)).

³ *Arizona Pub. Serv. Co. v. Long*, 773 P.2d 988, 995 (Ariz. 1989).

I. Arizona's Territorial Water Laws (1864-1912)

In 1864, one year after Arizona's recognition as a U.S. territory⁴, the first Arizona Territorial Legislature adopted the Howell Code, which established prior appropriation rights for surface water.⁵ Prior appropriation received judicial recognition as the territory's means for allocating surface water rights in *Clough v. Wing*, an 1888 decision implicating the paradigm scenario in which a landowner's access to flowing surface water is frustrated by an upstream landowner's newly constructed dam to divert the water.⁶ For the preceding fifteen years, the downstream landowner and senior user, A.S. Clough, had been using the water to irrigate vineyards and orchards, and now claimed that the creek provided the only available means to do so;⁷ Clough asked the court to "perpetually enjoin" the upstream landowner's use of *any* of the creek's water.⁸ At trial, the jury was asked to decide whether Wing's use injured Clough by depriving him of the water needed "to accomplish his task,"⁹ which the court answered in the negative.¹⁰ By focusing on the existence of an injury, the court emphatically rejected common law riparian rights in favor of the prior appropriation doctrine, which grants the first person to take water and put it to a beneficial use with a property right in that amount of water unhindered

⁴ UNITED STATES STATUTES AT LARGE, 37 Cong. Ch. 56, February 24, 1863, 12 Stat. 664

⁵ The Arizona Legislature's first act was passed on October 1, 1864 and authorized by then Governor John N. Goodwin to designate a commissioner to propose the territory's legal code. Judge William T. Howell, in anticipation of Arizona's creation and forthcoming need for a legal code, had already drafted a 400 page legal code. Governor Goodwin assigned the task to Judge Howell who's proposed legal code immediately became the subject of extensive debate in Arizona's first capital, the City of Prescott. Seven years later, the legislature finally adopted a modified version of the draft, appropriately named the Howell Code, in 1871. 3 Thomas E. Farish, *History of Arizona* 45-47 (Filmer Brothers Electrottype Company, 1916).

⁶ *Clough v. Wing*, 17 P. 453 (Ariz. Terr. 1888).

⁷ *Id.* at 454.

⁸ *Id.* (emphasis added).

⁹ *Id.*

¹⁰ Whether Clough suffered injury was a jury-issue out of chancery, so the jury's verdict only served to advise the court.

by later users. In doing so, the court waxed poetically that prior appropriation “has been recognized longer than history, and since earlier than tradition.”¹¹

II. Bifurcated Water Laws – Percolating Groundwater Distinguished from Surface Water

A. Absolute Ownership

In a 1904 decision, the court recognized an overlying landowner’s absolute ownership of groundwater percolating below, therefore placing percolating groundwater beyond the reach of prospective appropriators.¹² In that case, *Howard v. Perrin*, both parties and the court agreed that as a matter of law, “[n]o distinction exists between waters running under the surface in defined channels and those running in distinct channels upon the surface. The distinction is made between all waters running in distinct channels, whether upon the surface or subterranean, and those oozing or percolating through the soil in varying quantities and uncertain directions.”¹³ Therefore, the case’s outcome turned on a factual determination: whether the water used and claimed as appropriated by the cross-complainant constituted flowing groundwater or percolating groundwater.¹⁴ The court burdened the party claiming to have appropriated groundwater with demonstrating “the existence of a subterranean stream of water flowing in a well-defined channel.”¹⁵ Ever since, Arizona has administered a bifurcated system of water rights to govern percolating groundwater according to absolute ownership, and surface water and subsurface streams according to prior appropriation.¹⁶

¹¹ *Id.* at 455.

¹² *Howard v. Perrin*, 76 P. 460 (1904), *aff’d* 200 U.S. 71 (1906).

¹³ *Id.* at 462.

¹⁴ *Id.* at 462 (“a running stream flowing in natural channels between well-defined banks...or whether it was, on the contrary, filtrating or percolating water oozing through the soil beneath the surface in undefined and unknown channels.”) Codified in the Water Code (1919).

¹⁵ *Id.*

B. Rights and Duties of Appropriators

In *Pima Farms Co. v. Proctor*, the court held that non-percolating groundwater and surface water are governed by the same principles of law and clarified the rights and duties of appropriators.¹⁷ The dispute concerned a junior upstream appropriator whose groundwater pumping neutralized a senior downstream appropriator's means of diversion. The court held that the upstream user must allow sufficient flow to reach the downstream user so that his means of diversion, as originally installed, could sustain its previous production. As an alternative, the upstream user could produce and deliver the downstream user's appropriation.¹⁸

The court showed its predilection for economic growth at the expense of conservation. In language that foreshadowed Arizona's groundwater mining problems, the court stated:

“[t]he source of supply of plaintiff and defendant, as indicated at the date of trial, is quite a large body of water, and none of it should be permitted to go to waste if it can be lifted out of the bowels of the earth and economically applied to a beneficial use. It is, and has ever been, the policy of this state to make the largest possible use of the comparatively limited quantity of water within its boundaries.”¹⁹

C. Types of Groundwater: Percolating, Running In A Well-Defined Stream, and Subflow

In *Maricopa Co. Municipal Water Conservation Dist. v. Southwest Cotton Co.*²⁰ in 1931, the Arizona Supreme Court²¹ established a subcategory of appropriable groundwater called “subflow.” Southwest Cotton, on land that it owned north of Phoenix, drilled almost 100 wells in and around the Aqua Fria River bed to irrigate its 19,000 acres.²² In 1925, the Maricopa

¹⁷ *Pima Farms Co. v. Proctor*, 245 P. 369 (Ariz. 1926).

¹⁸ *Id.* at 374.

¹⁹ *Id.* at 371.

²⁰ *Id.*

²¹ Arizona became a state in 1912.

²² *Pima Farms Co.*, 245 P. at 374.

Conservation District obtained approval to construct a dam upstream from Southwest Cotton.²³ Fearing that the approved dam would prevent water from reaching its downstream wells, Southwest Cotton asked the court to enjoin its construction. In dramatic fashion, the court announced that it would treat

“the time has come when it is necessary for the protection and guidance of future agricultural development in the state that these principles should be enunciated as clearly and definitely as possible, so that our citizens may know how to guide their future procedure. For this reason we treat the matter as though it were of first impression in all respects, not only considering the new issues which have arisen, but reconsidering and redetermining the old ones upon which we have heretofore expressed an opinion.”²⁴

First, the court examined the text and context of applicable legislation and found that Arizona’s first chief executive, Governor Goodwin, instructed Arizona’s first Legislature “to adopt a permanent policy as to the use of water for agricultural as well as mining purposes. Where water is scarce and valuable it is important to provide against monopolies, and that it should be used as much as possible for the common good.”²⁵ The Legislature’s response, reflected in Article 22 of the Bill of Rights, stated:

‘All streams, lakes, and ponds of water capable of being used for the purposes of navigation or irrigation, are hereby declared to be public property; and no individual or corporation shall have the right to appropriate them exclusively to their own private use, except under such equitable regulations and restrictions as the Legislature shall provide for that purpose.’²⁶

The Legislature’s response is further reflected in Chapter 55, sections 1 through 3 of Howell’s Code:

²³ *Id.*

²⁴ *Maricopa Co. Municipal Water Conservation Dist. v. SW Cotton Co.*, 4 P.2d 369, 372 (Ariz. 1931).

²⁵ *See SW Cotton* 4 P.2d at 373.

²⁶ Article 22 of the Bill of Rights [Comp. Laws 1874-1871, p 25].

Section 1. All rivers, creeks and streams of running water in the Territory of Arizona are hereby declared public, and applicable to the purposes of irrigation and mining, as hereinafter provided.

Sec. 2. All rights in *acequias*, or irrigating canals, heretofore established shall not be disturbed, nor shall the course of such *acequias* be changed without the consent of the proprietors of such established rights.

Sec. 3. All the inhabitants of this Territory, who own or possess arable and irrigable lands, shall have the right to construct public or private *acequias*, and obtain the necessary water for the same from any convenient river, creek or stream of running water.’ See *SW Cotton* at 374-375.

The Court determined that the Legislature’s language in Article 22 of the Bill of Rights and Chapter 55 of Howell’s Code “amounted to a statutory repudiation of the doctrine of riparian rights and an establishment of the so-called doctrine of prior appropriation...*so far as the waters named in the Bill of Rights are concerned*, and this has been repeatedly and distinctly held by this court consistently for many years.”²⁷ The court attempted to give the Legislature’s words “a definition consonant with ideas then prevailing, rather than a technical meaning which may have attached to them perhaps a generation or more after they were first used.”²⁸ According to the court, there was little understanding in 1864 that underground water could be “rivers, lakes, and streams[,]” and all underground waters “were presumed to be percolating[.]”²⁹ Therefore, pursuant to the Legislature’s then-understanding, Article 22 applies only to above-ground rivers, lakes, ponds, and groundwater “of a similar character,”³⁰ thus excluding percolating groundwater from the class of appropriable waters; the court reaffirmed that percolating groundwater is subject to reasonable use and reiterated the presumption that underground waters are percolating.³¹

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.* at 376.

The dispute turned on a factual determination: whether the waters in question were percolating or running in well-defined channels with known boundaries.³² The court created the concept of “subflow” to classify appropriable groundwater, and defined it as “waters that slowly find their way through the sand and gravel [of] the bed of the stream, or [through] lands under or immediately adjacent to the stream....”³³ Arizona’s commitment to its bifurcated system of water rights despite a recognition of a hydrological connection between surface and ground water required the court to create a mechanism to determine relative rights between groundwater pumpers and surface water appropriators. To this end, the court announced a test for subflow that asked whether the “drawing off the subsurface water tends to diminish appreciably and directly the flow of the surface stream?”³⁴

Notably, the *Southwest Cotton* court increased the burden of proof to establish the presence of an underground stream. A party seeking to establish the existence of an underground stream may only overcome the presumption that groundwater is percolating and therefore subject to ownership by the overlying landowner by providing clear evidence of four elements: (1) a channel, (2) within a well-defined bed and banks, (3) a current, and (4) certainty of location.³⁵ At the crux of the court’s inquiry was the “law applicable to the relative rights to the ownership and use of the subterranean waters of the state as against those of the surface waters.”³⁶ The court refused to entertain the issue of relative rights among users of the same underground supply, instead limiting its potential options to an unqualified absolute ownership rule or a rule of correlative rights to limit landowner’s taking of groundwater to his proportionate share.

³² *Id.*

³³ *Id.* at 380 (citing 2 CLESSON S. KINNEY, THE LAW OF IRRIGATION AND WATER RIGHTS § 1161, at 2106 (2d ed. 1912)).

³⁴ *Id.* at 380-81.

³⁵ *Id.* at 376-77.

³⁶ *Id.* at 372.

The impact of the *Southwest Cotton*'s holding reverberated sixty years later when the court reaffirmed its narrow concept of subflow. In *Gila*, the court announced that “even though *Southwest Cotton* may be based on an understanding of hydrology less precise than current theories, it would be inappropriate to undo that which has been done in the past.”³⁷ At any rate, the court conceded that problems continued to undermine the equitable apportioning of conflicting interests and claims of groundwater users and surface appropriators.³⁸

III. The Doctrine of Reasonable Use For Percolating Groundwater

A. The Bristol Cases

The Arizona Supreme Court's remarkable decision in the 1953 case *Bristol v. Cheatham I* departed from nearly fifty years of common law.³⁹ By holding that percolating groundwater is subject to prior appropriation, the court ignored use of *expressio unius*⁴⁰ in *Southwest Cotton* to restrict the appropriable waters to those listed in Article 22 of the Bill of Rights.⁴¹

In *Bristol I*, the plaintiffs and defendants lived above a common supply of groundwater. The plaintiffs alleged that for 36 years the underground basin supplied all of their domestic water use.⁴² However, in 1948 and 1949 the defendants sunk eleven wells with “powerful pumps” on their property and began withdrawing water from the common supply.⁴³ The defendants

³⁷ *In re Gen. Adjudication of All Rights to Use Water in Gila River System and Source*, 857 P.2d 1236, 1247 (Ariz. 1993).

³⁸ *Id.*

³⁹ *Bristol v. Cheatham I*, 240 P.2d 185 (Ariz. 1952) *on reh'g*, 255 P.2d 173 (Ariz. 1953).

⁴⁰ *Expressio Unius* is the statutory canon of construction that reasons the “inclusion of one thing implies the exclusion of others.”

⁴¹ *Bristol I*, 240 P.2d at 187.

⁴² *Id.* (The plaintiffs alleged “that since 1916 their domestic supply of water has been, and is, derived exclusively from this underground water supply and that they have enjoyed the use of the same continuously since that time.”).

⁴³ *Id.*

transported the withdrawn water three miles and used it at another parcel also owned by defendants.⁴⁴

In its holding, the court sought to expose the concept that a surface owner owns the water beneath his land as an incompatible with conventional wisdom - a surface owner possesses all the rock below his land.⁴⁵ Pointing out that “rocks stay in place, [and] water moves,” the court could not comprehend how the ownership rights of both rock and water could be supported by the same fundamental principle.⁴⁶ Unlike rock, a landowner’s possession of water is constantly changing in nature because one cannot own water “until it arrives at, or after it passes, his boundaries.”⁴⁷ Effectively chastising its predecessors for distinguishing between percolating groundwater and underground streamwater, the court proclaimed that its continued adherence to *Howard v. Perrin* and its progeny “would be more harmful to the public at large...than...[overruling] precedent.”⁴⁸ Ultimately, the Court determined that the “property rights in water consists alone in the right to its use.”⁴⁹ The Court explained that “*Howard v. Perrin* and others” would had been decided differently had the court not overlooked the Desert Land Act of 1877, which severed ground waters from the soil and made them public, and “declared percolating waters to be public and subject to appropriation.”⁵⁰

⁴⁴ *Id.*

⁴⁵ *Id.* at 189 (quoting Marion Rice Kirkwood, *Appropriation of Percolating Waters*, Vol. 1, STAN.L. REV.,1 (1948).)

⁴⁶ *Id.* (The opinion’s author, Justice Phelps, seemed to be thinking out loud when he concluded his analysis with a rhetorical question: “Doesn't the property interest of the landowner really go only to his exclusive right of access to the water through his land rather than to his ownership of the water itself?”)

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.* at 188-89.

⁵⁰ *Id.* at 189-91 (quoting *California Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142, 163-164 (1935) (Holding that under the Desert Land Act, 43 U.S.C.A. § 321, “all nonnavigable waters then a part of the public domain became publici juris, subject to the plenary control of the designated states, including those since created out of the territories named, with the right in each to determine for itself to what extent the rule of appropriation or the common-law rule in respect of riparian rights should obtain.”) (In *Bristor I*, the Court stated “That act (the act of March 3, 1877) allows the entry and

Behind the court’s analysis was its concern that the rule of absolute ownership caused unsustainable withdrawals of groundwater. Emphasizing the junior user’s “powerful pumps,”⁵¹ the court cautioned, “[i]t is only in recent years that motor operated pumps capable of withdrawing thousands of gallons of water per minute from the earth have been available.”⁵² According to the court, the ramifications of allowing the “current water race to continue unabated, without regulation or control, would inevitably lead to exhaustion of the underground supply and consequently to economic disaster.”⁵³ Understanding Arizona’s existing Groundwater Code to permit continued pumping of groundwater at historic levels, the court feared that continuing to recognize that a surface owner owns percolating groundwater beneath his land would shackle the legislature “from enacting an underground water code to meet the present emergency.”⁵⁴

The following year, the Arizona Supreme Court reheard the case, readopted the principle of absolute ownership, and officially introduced a reasonable use requirement.⁵⁵ In condemning its holding in *Bristor I*, the court corrected its aforementioned interpretation of the Desert Land Act, stating that “[e]ven if the premise were true that [ground] waters are thus severed, the conclusion that the Act also gives some rights to appropriate is unsound.”⁵⁶ Moreover, the court could “find no authority for the assumption that there exists any custom and usage to divert

reclamation of desert lands within the states of California, Oregon, and Nevada (to which Colorado was later added), and the then territories of Washington, Idaho, Montana, Utah, Wyoming, Arizona, New Mexico, and Dakota, with a proviso to the effect that *the right to the use of waters by the claimant shall depend upon bona fide prior appropriation, not to exceed the amount of waters actually appropriated and necessarily used for the purpose of irrigation and reclamation.*”)

⁵¹ *Id.* at 187.

⁵² *Id.* at 190.

⁵³ *Id.*

⁵⁴ *Id.* at 189.

⁵⁵ *Bristor v. Cheatham II*, 255 P.2d 173 (Ariz. 1953).

⁵⁶ *Id.* at 177 (The author of the Court’s opinion in *Bristor I*, Justice Phelps, dissented and stated that “since handing down the majority opinion [in *Bristor I*] we have completely re-examined the law relative to percolating waters in Arizona and are even more firmly of the opinion...that the Congressional Desert Land Act of 1877 effected a severance from the land of all waters upon *and under* the public domain.”)

ground waters for irrigation purposes and thereby secure a prior right thereto. Under both the civil and common law, ground water belonged to the owner of the soil.⁵⁷ Finally, the Court stated that even if such a custom existed, “it cannot prevail nor operate contrary to legislative rule.”⁵⁸ Most importantly, the court’s introduction of the doctrine of reasonable use provided that it “does not prevent the extraction of ground water subjacent to the soil so long as it is taken in connection with a beneficial enjoyment of the land from which it is taken. If it is diverted for the purpose of making reasonable use of the land from which it is taken, there is no liability incurred to an adjoining owner for a resulting damage.”⁵⁹ Thus, the fifteen-month era during which Arizona’s percolating groundwater fell subject to the doctrine of prior appropriation was over.

B. Reasonableness of Water Transfers - Major Cases Preceding Legislative Reform

1. *Jarvis v. State Land Dep’t I (1969) and Jarvis v. State Land Dep’t II (1970)*.

After *Bristor*, the court inconsistently applied the doctrine of reasonable use to the transportation of groundwater away from the land on which it was produced. To meet the demands of Arizona’s rapidly growing population, cities and mining companies began transferring groundwater from rural areas to more populated areas. These transfers threatened Arizona’s agricultural economy and provoked litigation among rural landowners and municipalities seeking to transfer groundwater to supply its urban users.⁶⁰ Ultimately, in

⁵⁷ *Id.* at 176 (citing KINNEY ON IRRIGATION AND WATER RIGHTS, 2d ed., Vol. I, Sec. 563).

⁵⁸ *Id.*

⁵⁹ *Id.* at 180; see also L. William Staudenmaier, *Between A Rock and A Dry Place: The Rural Water Supply Challenge for Arizona*, 49 ARIZ. L. REV. 321, 326 (2007) (“The court placed an important limitation on the doctrine, however, by concluding that the defendants in the case were not protected against the claims of their neighbors because the defendants were withdrawing groundwater from one parcel of land and transporting it approximately three miles away to be used on other land. Because this withdrawal of groundwater did not benefit the property from which it was withdrawn, the property owners were not immune from suit.”)

⁶⁰ See generally, Jeffrey S. Ashley & Zachary A. Smith, *Groundwater Management in the West*, Univ. of Nebraska Press 1999); Kenneth A. MacKichan, *Estimated Use of Water in the United States*, U.S. Geological Survey Circular 398, at *1(1955).

Farmers Investment Co. v. Betwvy the court interpreted the reasonable use requirement to rigorously restrict the transportation of groundwater for use away from its point of withdrawal.⁶¹ Less than a decade before *FICO*, the court struggled to decide *Jarvis v. State Land Dep't*.

In *Jarvis v. State Land Dep't I*, landowners in the Avra and Altar Valleys sued to enjoin the city of Tucson from pumping percolating groundwater from the valleys and transporting it nearly 20 miles for municipal use in Tucson.⁶² Pursuant to the reasonable use requirement adopted in *Bristor*, the outcome turned on the reasonableness of Tucson's use of the water 20 miles away from land on which it was produced.⁶³ In *Jarvis*, the court reconciled of the reasonable use requirement with the transportation of water by determining that landowner cannot withdraw groundwater and transport it off his land in a manner that damages or impairs the capacity of nearby landowners to withdraw groundwater.⁶⁴ However, a new wrinkle developed after the decision in *Bristor II* because the legislature adopted a Critical Groundwater Code, which created the Marana Critical Ground Water Area within which the Avra and Altar Valleys are located. Because the valleys are situated in a Critical Ground Water Area, the valleys are by definition areas "not having sufficient ground water to provide a reasonably safe supply for irrigation of the cultivated lands in the basin at the then current rates of withdrawal."⁶⁵ Thus, "[m]anifestly, a ground water area or subdivision of a basin which does not have a reasonable safe supply for the existing users can only be but further impaired by the addition of other users or uses."⁶⁶ After examining the available, but admittedly insufficient data, the court

⁶¹ 558 P.2d 14 (Ariz. 1976).

⁶² *Jarvis v. State Land Dept. City of Tucson*, 456 P.2d 385, 386 (Ariz. 1969).

⁶³ *Bristor v. Cheatham II*, 255 P.2d 173 (Ariz. 1953).

⁶⁴ *Jarvis*, 456 P.2d at 387 (quoting *Bristor II*, 255 P.2d at 178).

⁶⁵ Ariz. Rev. Stat. Ann. § 45-301.

⁶⁶ *Jarvis*, 456 P.2d at 388.

determined that Tucson's drainage illegally depleted the Valleys' existing water supply, and awarded the rural landowners their requested injunction.⁶⁷

Upon rehearing en banc, however, the court modified its injunction to lessen the restriction of Tucson's transportation of water. The court stated that Tucson "may withdraw water from the basin for municipal uses to the same extent as water previously withdrawn for use on those lands."⁶⁸ Still, the court warned Tucson that "in no event may water be withdrawn both for use on the lands and transported off the lands for municipal purposes."⁶⁹

2. *Farmer's Investment Company (FICO) v. Bettwy (1976)*

Seven years later, Arizona's Supreme Court was asked to define the "overlying land" in the context of water transportation and reasonable use.⁷⁰ The dispute concerned FICO's request for an injunction to stop a mining company's injurious groundwater pumping.⁷¹ Both parties owned lands located within a critical groundwater area. However, FICO asked the court to condemn the mining company for pumping groundwater from land inside the critical groundwater area for use outside the critical groundwater area.⁷² In its defense, the mining company appealed to the "guiding principle" from *Bristor II* that "groundwater may not be

⁶⁷ *Jarvis v. State Land Dept. City of Tucson*, 104 Ariz. 527, 530 (1969). ("There is no sufficient data to determine the theoretical available reservoir storage or the rate of withdrawal with relation thereto in the Altar Valley, but it is clear that its underground drainage is into the Avra Valley. In the Avra Valley the water storage has been determined to be about 16.5 million acre feet above an arbitrary depth of 1,000 feet below the surface of the ground. Statistics supplied from wells in the Avra Valley for a ten year period from the spring of 1955 to the spring of 1965, establish that about 1.2 million acre feet of ground water were withdrawn for an average of 120,000 acre feet annually. After considering the small amount of natural inflow in excess of the natural outflow, this withdrawal in ten years has amounted to about fifteen per cent of the storage capacity of that portion of the reservoir underlying the Avra Valley and has resulted in the lowering of the water table by approximately eighteen feet. Long range planning within the Avra-Altar area, is, of course, as elsewhere, based on the proposition that a hydrologic equilibrium must be maintained.")

⁶⁸ *Jarvis v. State Land Dept.*, 479 P.2d at 174 (Ariz. 1970).

⁶⁹ *Id.*

⁷⁰ A. Dan Tarlock, et. al., *WATER RESOURCE MANAGEMENT* 985 (Foundation Press 2009) (2002).

⁷¹ *Farmers Inv. Co. v. Bettwy*, 113 Ariz. 520 (1976).

⁷² *Id.* at 523.

conveyed to point beyond lands overlying the common supply, compelling the conclusion that if the water so transported returns at least in part to replenish the common supply, this satisfies the American doctrine of reasonable use.”⁷³ According to the mining company, “since the groundwater basin allegedly lay beneath the entire area (i.e., beneath the well site as well as the mill site and tailings ponds), the uses were actually on the same ‘land’ or ‘parcel.’”⁷⁴ The court dismantled the mining company’s argument with a direct quote from its opinion in *Bristor II* which provided that the doctrine of reasonable use “does not prevent the extracion [*sic*] of groundwater subjacent to the soil so long as it is taken in connection with a beneficial enjoyment of the land From which it is taken.”⁷⁵ In sum, the court held that withdrawal of percolating waters for use off the lands from which they are pumped is unreasonable if it damages or injures other overlying landowners of the common supply.

The *FICO* court understood the mining company’s arguments as a request that its mining interests be prioritized over farming interests. However, the court acknowledged the principle of “first in time, first in right” to conclude that the farmers’ rights to the groundwater had vested, thus entitling the protection of their substantial investments.⁷⁶

IV. The Colorado River Compact

The controversy surrounding the Colorado River Compact (the Compact) provides crucial insight into the history and development of Arizona’s water policy. The Compact involved negotiations between the seven states located within the river’s drainage basin; the states were divided into Upper Basin states and Lower Basin states. Upper Basin states included Colorado, New Mexico, Utah, and Wyoming. The Lower Basin states included Arizona,

⁷³ *Id.* at 52.

⁷⁴ Jon L. Kyl, *The 1980 Arizona Groundwater Management Act: From Inception to Current Constitutional Challenge*, 53 U. COLO. L. REV. 471, 475 (1982)

⁷⁵ *Id.* at 19 (quoting *Bristor II* at 180)(emphasis supplied)

⁷⁶ *Id.* at 21.

California, and Nevada. While the Compact conceptualized the apportionment to the two groups of states – each basin received 7.5 million acre-feet– it did not specify how each basin’s apportionment would be distributed amongst its member-states; the states were unable to agree on each state’s share of the water. The Compact nevertheless allotted 2.8 million acre-feet to Arizona, 4.4 million acre-feet to California, and .3 million acre-feet to Nevada. Arizona disputed these allotments and refused to ratify the Compact until 1944 because of concerns regarding the distribution and apportionment of tributary waters from the Salt and Gila Rivers.⁷⁷ By refusing to ratify the Compact, Arizona boldly resisted the White House’s desire for the states to resolve issues related to the distribution of the Colorado River’s water. In addition to the general public, Arizona’s mining, agricultural, and energy industries shared concern over the implications of any Colorado River development on their respective interests.

While negotiations over the term of the Compact were taking place in Santa Fe, New Mexico from 1919 to 1922, incumbent Governor Campbell (R) and former governor George W.P. Hunt (D) were campaigning to be Arizona’s next governor. The candidates held opposite views on the Compact; while Campbell supported the reclamation policies of the federal government, Hunt voiced skepticism of any development not undertaken on Arizona’s own terms. Hunt won decisively, and immediately declared, “We have at least two million acres in this state that shall be irrigated with the water of the Colorado River. Arizona must have every bit of the power out of that river that she can use in any of her industries.”⁷⁸

A. Arizona’s Dispute Rises to the Supreme Court

⁷⁷ AZWater.gov, History of Water Management in Arizona, http://www.azwater.gov/azdwr/watermanagement/History/History_of_Water_Management_in_Arizona7.htm (last accessed Sep. 25, 2013)

⁷⁸ Dean E. Mann, *The Politics of Water in Arizona*, 83 (Univ. of Arizona Press 1963) (quoting Malcom Parsons, *The Colorado River in Arizona Politics*, page 62, University of Arizona M.A. thesis (1947).

After the Compact's ratification, Arizona attempted to obstruct its effect in three separate lawsuits; once arguing that the Colorado River is not a "navigable water."⁷⁹ Nevertheless, in *Arizona v. California* in 1963, Arizona scored a crucial victory when it persuaded the Supreme Court to abandon the equitable apportionment doctrine to resolve its interstate water dispute with California, and instead find that Congress had allocated the Colorado River among states.⁸⁰ In addition to its allotted 2.8 million acre-feet under the Compact, Arizona successfully argued that the Compact and Boulder Canyon Project Act (BCP Act) also protected its rights to the exclusive use of the Gila River under Article 8's protection of present perfected rights.⁸¹ The Court determined "that Congress in passing the [BCP Act] intended to and did create its own comprehensive scheme for the apportionment among California, Arizona, and Nevada of the Lower Basin's share of the mainstream waters of the Colorado River, leaving each State its tributaries."⁸² California, which had been appropriating 5 million acre-feet for decades, was now limited to 4.4 million acre-feet. Most importantly for Arizona, the Court's ruling paved the way to the Central Arizona Project.

B. The Central Arizona Project (1968)

Arizona's triumph boosted its efforts to lobby the federal government to construct an aqueduct from Lake Havasu to central Arizona to transport its water allocation to the state. Arizona's efforts finally culminated in 1968 when President Lyndon B. Johnson signed a bill that created the Colorado River Basin Project Act (River Basin Act), which in turn led to breaking

⁷⁹ See *State of Arizona v. State of California*, 283 U.S. 423, 452 (1931), *disavowed by* *California v. United States*, 438 U.S. 645 (1978) ("Arizona contends both that the river is not navigable, and that it was not the purpose of Congress to improve navigation.").

⁸⁰ 373 U.S. 546 (1963); *compare, Kansas v. Colorado*, 206 U.S. 46 (1907)(holding that Kansas and Colorado each held an equal right to Arkansas River and each state's entitlement should be based on an equitable apportionment).

⁸¹ Robert Glennon & Jacob Kravkewitz, "A Smashing Victory"? *Was Arizona v. California a Victory for the State of Arizona?*, 4 ARIZ. J. ENVTL. L. & POL. 1, 17 (Fall 2013).

⁸² *State of Ariz.*, 373 U.S. at 564-565.

ground on the Central Arizona Project (CAP) in 1973. The CAP is a 335-mile long aqueduct capable of transferring 1.5 million acre-feet of Colorado River water annually from Lake Havasu to central and southern Arizona. Initially, diverted waters were intended to satisfy the state's agricultural water needs,⁸³ but complications arose shortly after President Carter's election in 1977. President Carter identified the CAP as one of the nineteen federally funded projects that comprised his "hit-list" of economically unjustifiable and environmentally harmful federal projects.⁸⁴ Although the CAP ultimately survived President Carter's attempt to defund the project, Arizona's water policy was not unscathed. In the bargain to secure President Carter's approval, the CAP's upstream diversion was assigned a junior right to California's downstream entitlement to 4.4 million acre-feet.⁸⁵ Predicting that the CAP's delivery of over one million acre-feet alone would not avert water shortages in Arizona, the federal government required Arizona to pass a law "that would prevent expansion of groundwater uses from outstripping the supply of the [CAP]."⁸⁶ While this bargain kindled legislative-efforts to enact needed regulation, it was not until the courts issued a series of unsatisfying decisions between 1969 and 1976 that ultimately encouraged the Legislature to pass the Groundwater Management Act (the Groundwater Code) in 1980.⁸⁷

⁸³ Michael Hanemann, *The Central Arizona Project*, Department of Agricultural & Resource Economics, UCB, Year 2002, paper 937 (page 1) ("The original plans had assumed that agriculture would receive 60-80% of CAP water, and had conceived CAP as a "rescue mission" that would save Arizona agriculture from the growing problem of groundwater overdraft.")

⁸⁴ Conservatism and Environmentalism: An Encyclopedia. Edited by Robert Paehlke. Page 113 Written by Lettie McSpadden
(http://books.google.com/books?id=9WUqqgfrBHQC&pg=PA113&lpg=PA113&dq=president+carter+hit+list&source=bl&ots=Ud-1_t34-G&sig=B1yP2q9wCNDgdx608tUwwlPJGhk&hl=en&sa=X&ei=3yVSUvzPHOGkyQHBh4HQCQ&ved=0CGIQ6AEwBg#v=onepage&q=president%20carter%20hit%20list&f=false)

⁸⁵ See Tarlock., *supra*. note 71 at 985.

⁸⁶ *Id.* at 594

⁸⁷ See Section III(B) regarding Water Transfers on pages 13-14.

V. The Arizona Groundwater Management Act of 1980

Continued overdrafting of Arizona’s water supplies throughout the 1970’s prompted further legislative reform to Arizona’s groundwater laws. When the Legislature enacted the Arizona Groundwater Management Act (the Groundwater Code) in 1980, supporters championed it as “the most comprehensive management system of any state in the American West.”⁸⁸ The Groundwater Code declared it the public policy of the state “to conserve, protect and allocate” the use of the State’s groundwater resources and to provide for the comprehensive “management and regulation” of rights to use groundwater.⁸⁹ To achieve its conservation objectives, the Groundwater Code preserved certain rights of active groundwater users while restricting the rights of future groundwater users. In addition to centralizing water planning and regulation within a state agency, the Department of Water Resources (ADWR), the Groundwater Code designated the four areas most threatened by overdrafting as Active Management Areas (AMAs).⁹⁰ The four initial AMA’s encompassed over 80% and 83% of Arizona’s population and overdraft, respectively.⁹¹ Outside the AMAs, the common law rules of reasonable use and beneficial use remained in effect.

A. Active Management Areas (AMAs)

The Groundwater Code set area-specific goals for the AMAs and provided for five management periods⁹² during which the Director of the ADWR was required to impose on each AMA “a continuing mandatory conservation program for all persons withdrawing, distributing or

⁸⁸ Kyl, *supra* note 75.

⁸⁹ ARIZ. REV. STAT. ANN. §§ 45-401 to -704 (1994).

⁹⁰ *Id.* at §45-411 (creating the Tucson AMA, Phoenix AMA, Prescott AMA, and Pinal AMA)

⁹¹ Jeffrey S. Ashley & Zachary A. Smith, *Groundwater Management in the West*, at 193.

⁹² ARIZ. REV. STAT. ANN. §§ 45-564-568 (The five management periods were 1980-1990, 1990-2000, 2000-2010, 2010-2020, and 2020-2025).

receiving groundwater designed to achieve reductions in withdrawals of groundwater.”⁹³ If the conservation programs were proving ineffective, the Director was authorized to create “a program for the purchase and retirement of grandfathered rights by the department to begin no earlier than January 1, 2006.”⁹⁴

B. Creation of Groundwater Rights

Irrigation in an AMA was only allowed under a “grandfathered” right or pursuant to a permit. The Act recognized only three types of grandfathered rights: irrigation grandfather rights, type I nonirrigation grandfather rights, and type II nonirrigation grandfather rights.⁹⁵ If land in an AMA was irrigated during the five years leading up to the Act’s adopting in 1980, the land had a grandfathered irrigation right.⁹⁶ Second, a type I nonirrigation grandfather right belonged to any individual who purchases land with an irrigation grandfathered right, but subsequently retires the land from irrigation. Such landowners received a water right to 3 acre-feet per year per acre.⁹⁷ Third, a type II nonirrigation grandfather right belonged to landowners who had extracted groundwater for nonirrigation purposes before the area’s designation as an AMA.⁹⁸ The type II nonirrigator received a water right equal to the greatest amount of extractions during any one of the five years prior to the creation of the AMA.⁹⁹

The AMA also instructs how the available quantity of water under a grandfathered right is calculated. The quantity is determined by multiplying the “irrigation water duty” by the “water duty acres.”¹⁰⁰ The Director of DWR fixes a reasonable “irrigation water duty” by

⁹³ *Id.* at §45-563.

⁹⁴ *Id.* at §45-566(A)(9).

⁹⁵ *Id.* at §45-462(D).

⁹⁶ *Id.* at § 45-463.

⁹⁷ *Id.*

⁹⁸ *Id.* at § 45-464.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at § 45-465.

determining the amount of water needed to irrigate one acre of land, considering accepted conservation practices and crops historically grown.¹⁰¹ “Water duty acres” is the number of acres used for irrigation in any one of the five years prior to the AMA designation.¹⁰² However, landowners do have some flexibility to vary the quantity of water they withdraw each year. A landowner who withdraws less than his allowable quantity can withdraw the “saved” amount in a later year. In addition, a landowner can withdraw up to 50% of more than his allowable quantity and make up the difference in a later year.¹⁰³

C. Transportation of Water

The Groundwater Code also significantly relaxed the prohibition on transporting groundwater away from where it was produced. This feature has received credit for encouraging the compromise that led to the Groundwater Code.¹⁰⁴ The Groundwater Code eliminated damages for transporting water “[w]ithin a subbasin of a groundwater basin or within a groundwater basin, if there are no subbasins.”¹⁰⁵ Moreover, the Groundwater Code clearly backtracked from the *FICO* court’s presumption that transporting water out of a critical groundwater area constituted an unreasonable use. Instead, the Groundwater Code established that when water is not transported “[w]ithin a subbasin of a groundwater basin or within a groundwater basin, if there are no subbasins,” but instead transported across a subbasin boundary, the court will not presume a resulting injury to or impairment of the water supply of

¹⁰¹ *Id.* at §§ 45-402(24), 45-566(A)(1).

¹⁰² *Id.*

¹⁰³ *Id.* at § 45-467.

¹⁰⁴ L. William Staudenmaier, *Between A Rock and A Dry Place: The Rural Water Supply Challenge for Arizona*, 49 ARIZ. L. REV. 321, 328 (2007) (“The original doctrine of reasonable use has been modified in one very significant respect since the Arizona Supreme Court decided the *FICO* case. Specifically, one of the compromises struck among competing water users during negotiations that led to adoption of the GMA was a substantial liberalization of the *FICO* court’s strict interpretation of the prohibition on transporting groundwater away from the site of pumping.”).

¹⁰⁵ ARIZ. REV. STAT. ANN. §45-544(A)(1)

any landowner.¹⁰⁶ Furthermore, the Groundwater Code instructed “In determining whether there has been injury and the extent of any injury, the court shall consider all acts of the person transporting groundwater toward the mitigation of injury.”¹⁰⁷ The most significant restricting remaining under the Groundwater Code provided that “Groundwater shall not be transported away from a groundwater basin.”¹⁰⁸

D. Assured Water Supply

The Assured Water Supply program’s purpose is “[t]o sustain the State’s economic health by preserving groundwater resources and promoting long-term water supply planning.”¹⁰⁹ The program applies only to AMAs and imposes a requirement to demonstrate 100 years of water supplies for new subdivisions,¹¹⁰ both residential and commercial, therein. To obtain an “Assured Water Supply” designation, an AMA must demonstrate that water is: (1) physically available for 100 years; (2) continuously available for 100 years; (3) legally available for 100 years; (4) of sufficient quality; and (5) the AMA is financially capable of ensuring the adequate delivery, storage, and treatment works for the water.¹¹¹

E. The Underground Water Storage Act (1986)

Much has been said about the Groundwater Code’s apparent indifference to the hydrological connection between underground and surface water.¹¹² In contrast to the bifurcated

¹⁰⁶ See *Id.* at §45-544(A).

¹⁰⁷ *Id.* at § 45-545 (the factors to be considered include: (1) Retirement of land from irrigation; (2) Discontinuance of other preexisting uses of groundwater; (3) Water conservation techniques; and (4) Procurement of additional sources of water which benefit the active management area, sub-basin or landowners within the active management area or sub-basin).

¹⁰⁸ *Id.* at § 45-544(A)(2)

¹⁰⁹ Assured Water Supply program power point at slide 5.

¹¹⁰ A subdivision is defined as land divided into six or more parcels where at least one parcel is less than 36 acres, which is offered for sale or lease for more than one year.

¹¹¹ *Id.*

¹¹² See Paula K. Smith, *Coercion and Groundwater Management: Three Case Studies and a ‘Market’ approach*, 16 ENVTL. L. 797, 805 (1986).

approach, conjunctive management “refers to the coordinated and planned use and management of both surface water and groundwater resources to maximize the availability and reliability of water.”¹¹³ Conjunctive management relies heavily on underground storage, whereby “[w]ater is stored in the groundwater basin for later and planned use by intentionally recharging the basin when excess water supply is available, for example, during years of above-average surface water supply or through the use of recycled water.”¹¹⁴ However, towards the close of the 20th century, Arizona embraced principles of conjunctive management when the Legislature created an optional underground storage program.

The burdensome effects of Arizona’s rapidly increasing population, development, and industry on ground water supplies pressed the state to explore more sustainable practices. These efforts began in 1986 when Arizona’s legislators established the Underground Water, Storage and Recovery Program (the Program) to allow water user’s to store excess supplies of water underground so that the user could use it at a later time. Eight years later, the Legislature passed the Underground Water Storage, Savings, and Replenishment Act (the Water Storage Act) to further develop the State’s underground storage program. To accomplish the Water Storage Act’s stated-policy of protecting Arizona’s general economy and welfare by encouraging the use of renewable water supplies to reduce water users’ reliance on groundwater, the Program incorporates a technique called Artificial Recharge.¹¹⁵ “Recharge” can be defined simply as the addition of water into an aquifer.¹¹⁶

¹¹³ 2 CALIFORNIA WATER PLAN UPDATE 2009 8-1(2009)(Pre-final Draft), *available at* http://www.waterplan.water.ca.gov/docs/cwpu2009/1009prf/v2ch08-conj_mgt_pf_09.pdf.

¹¹⁴ *Id.*

¹¹⁵ *See* ARIZ. REV. STAT. ANN. § 45-801.01 (West).

¹¹⁶ *Basic Terminology*, ARIZONA DEP’T OF WATER RESOURCES, <http://www.azwater.gov/azdwr/WaterManagement/Recharge/BasicRechargeTerminology.htm> (last visited Oct. 21, 2013).

The ADWR administers the Recharge Program through a variety of permit categories. The ADWR will issue “long-term storage credits” when eligible water is stored underground for more than a year.¹¹⁷ Stored water “maintains the legal character of the original source water, regardless of where it is recovered or how it used.”¹¹⁸ preserves water to an aquifer may be rewarded by long-term storage credits.

In 1996, legislators created the Arizona Water Banking Authority (AWBA) to store Colorado River waters that would otherwise be unused in Arizona.¹¹⁹ Arizona’s rights to Colorado River waters were junior to California’s rights upstream waters. To develop a stored water supply to serve as an alternative to groundwater, the legislature declared that “diverting Colorado river water for storage off of the Colorado river system is a consumptive use of that water.”¹²⁰

F. Constitutional Challenge to the Groundwater Code

The Arizona Supreme Court did not wait long for a constitutional challenge to arrive at its doorstep. In *Town of Chino Valley v. City of Prescott* in 1981, Chino Valley unsuccessfully argued that the Groundwater Code violated the Fifth and Fourteenth Amendments to the Constitution of the United States by taking private property without due process of law and just compensation.¹²¹ Reiterating its earlier declaration that “the Legislature might choose between competing interests where the supply of groundwater was limited,” the court concluded, “that the exercise of such choice, controlled by considerations of social policy which are not unreasonable, involves a denial of due process.” The court further insisted that on numerous

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ Ariz. Rev. Stat. Ann. § 45-2421.

¹²⁰ *Id.*

¹²¹ *Town of Chino Valley v. City of Prescott*, 638 P.2d 1324 (Ariz. 1981).

occasions the United States Supreme Court has affirmed that a state's police powers permits even those restrictions on land use "which virtually destroy private interests."¹²²

The court insisted that the Groundwater Code did not encroach upon judicial powers. Drawing upon notions of *fares naturae*, the court held that the reasonable and beneficial use doctrine never provided a protected right to groundwater because "there can be no ownership in seeping and percolating waters until they are reduced to actual possession and control by the person claiming them because of their migratory character."¹²³ Ergo, a law that did not recognize a property right in the use of groundwater could not encroach on a non-existent right. According to the court, there was never a constitutionally protected right to use groundwater because the purported iteration of the rule in 1904 in *Howard v. Perrin* was actually dictum.¹²⁴ The court explained that "[l]ike wild animals free to roam as they please, [groundwaters] are the property of no one."¹²⁵ Thus, a landowner's right to groundwater is usufructuary: a landowner becomes the owner of groundwater only after it has been reduced to actual possession.¹²⁶

Upon rehearing en banc, the court upheld its previous decision.¹²⁷ The court deciphered its holdings in *Bristor* and *Jarvis* as demonstrative of the court's policy of deference to an announced rule that protects rights to groundwater, rather than an announcement that the rights to groundwater can never be modified by the legislature.¹²⁸ The court again clarified its

¹²² *Id.* at 1329. (See *Agins v. Tiburon*, 447 US 255 (1980)).

¹²³ *Id.* at 1328; See *Town of Chino Valley v. State Land Dept.*, 119 Ariz. 243 (1978).

¹²⁴ *Chino Valley v. Prescott*, 638 P.2d at 1327 ("the statement first made in *Howard v. Perrin* and reiterated under circumstances where the exact nature of the overlying owner's rights to the water beneath his property were not in question is not precedent for the decision in this case.")

¹²⁵ *Id.* at 1328.

¹²⁶ Corwin W. Johnson, *The Continuing Voids in Texas Groundwater Law: Are Concepts and Terminology to Blame?*, 17 ST. MARY'S L.J. 1281, 1290 (1986)

¹²⁷ *Davis v. Agua Sierra Resources, L.L.C. II*, 203 P.3d 506 (Ariz. 2009)

¹²⁸ *Chino Valley v. Prescott*, 638 P.2d 1324, 1327 (Ariz. 1981)(quoting *Bristor v. Cheatham*, 75 Ariz. 227, 231, 255 P.2d 173, 175 (1953))("Many and large investments have been made in the development of ground waters. Under these circumstances the court's announcement of the rule becomes a rule of property") (also quoting *Jarvis v. State Land Department*, 106 Ariz. 506, 479 P.2d 169, "The right to

preference that the legislature determines the state's groundwater policy: "if any change in the law is necessary, it should be made by the Legislature."¹²⁹

In 1982, constitutional challenges to the Groundwater Code arrived in federal court. In *Cherry v. Steiner*, plaintiffs sought to enjoin state officials from enforcing the Groundwater Code, alleging, *inter alia*, that "there are substantial quantities of groundwater underlying their several properties, and that the legislation has diminished the value of the land by taking their ownership in the water without compensation."¹³⁰ The plaintiffs argued that as landowners they enjoy "a proprietary interest in the groundwater underlying the property" and the court's decision in Chino Valley radically departed "from prior law and thus does violence to their property rights."¹³¹ However, the court unequivocally disagreed, stating, "[t]he only interpretation of Arizona law open to this Court is that a landowner has no interest in underlying groundwater prior to its capture. Without an interest in the percolating water, the plaintiffs may not assert a wrongful taking of their property; Chino Valley II emasculates their due process argument."¹³²

In the 2009 case, *Davis v. Aqua Sierra Resources, L.L.C.*, the court announced, "landowners outside of AMAs do not have a real property interest in the potential future use of groundwater that may be severed from the overlying land."¹³³ Although the case clarifies that a landowner with no history of groundwater use has no property interest in the future use of the groundwater, the court did not clarify the property rights of those landowners who do; the court recognized that at most, historical groundwater users have an "unvested expectancy" to

exhaust the common supply by transporting water for use off the lands from which they are pumped is a rule of law controlled by the doctrine of reasonable use and protected by the constitution of the state as a right in property.")

¹²⁹ *Id.*

¹³⁰ *Cherry v. Steiner*, 543 F. Supp. 1270, 1272 (D. Ariz. 1982) *aff'd*, 716 F.2d 687 (9th Cir. 1983)

¹³¹ *Id.* at 1277.

¹³² *Id.*

¹³³ 203 P.3d 506, 512 (Ariz. 2009).

groundwater.¹³⁴ In any event, the court's holding relied on its interpretation of the Section 45–555(A) of the Groundwater Code which requires a landowner to consent to the transportation of water off his property.¹³⁵ The court reasoned that had the legislature intended that rights to groundwater exist separate from the land in a manner that makes them transferable apart from the land, it would not have included a requirement to obtain the landowner's consent.¹³⁶

PART TWO

GROUNDWATER LAW IN TEXAS

INTRODUCTION

Until 2012, Texas's courts adjudicated over a century's worth of groundwater disputes without settling who owns groundwater in place. Confusion persisted after the legislature announced a statewide policy of bottom-up regulation of groundwater and sanctioned extensive local regulation of groundwater while simultaneously prohibiting regulatory encroachment on landowners' ownership rights to groundwater.¹³⁷ In Texas, water rights are ascribed pursuant to riparian and prior appropriation principles. This bifurcated approach assigns riparian rights to groundwater and the doctrine of prior appropriation to surface water. In 1904, Texas adopted the English Rule of absolute ownership and the rule of capture to govern rights to groundwater.

I. Absolute Ownership of Groundwater & The Rule of Capture

A. *Houston & Texas Central Railway Co. v. East* (1904).

In 1904, thirteen years before the Conservation Amendment, the Texas Supreme Court recognized a landowner's absolute ownership of any underlying water. In *Houston & Texas Central Railway Co. v. East*, a private landowner, East, sought damages from an adjacent

¹³⁴ Id. at 510.

¹³⁵ ARIZ. REV. STAT. ANN. § 45-555(A) (2010).

¹³⁶ *Davis*, 203 P.3d at 511-12.

¹³⁷ TEX. WATER CODE ANN. § 36.002 (West 2011).

landowner who's drilling caused East's spring to run dry.¹³⁸ The trial court held for the defendant; the court of appeals reversed, determining that the defendant railroad company's use was unreasonable.¹³⁹ When the case arrived to Texas's highest court, the Texas Supreme Court's task was clear: whether it should uphold the Court of Appeals reliance on the "reasonable use" doctrine for groundwater, or adopt the alternative doctrine of "absolute ownership" that would secure a landowner's right to produce all the groundwater he could irrespective of reasonableness of use. Ultimately, the court chose the latter, and proclaimed that "An owner of soil may divert percolating water, consume or cut it off, with impunity. It is the same as land, and cannot be distinguished in law from land."¹⁴⁰ By equating percolating groundwater as soil to establish a landowner's absolute ownership, the court distinguished the rights to groundwater from the rights to flowing surface waters, which were limited to reasonable use.

The adoption of absolute ownership to govern rights to groundwater, in effect, included the corollary rule of capture, known as "the English Rule."¹⁴¹ In *East*, the court borrowed the English case *Acton v. Blundell*'s articulation of the rule of capture:

[T]hat the person who owns the surface may dig therein, and apply all that is there found to his own purposes at his free will and pleasure; and that if, in the exercise of such right, he intercepts or drains off the water collected from underground springs in his neighbour's well, this inconvenience to his neighbour falls within the description of *damnum absque injuria* [an injury without a remedy], which cannot become the ground of an action.¹⁴²

¹³⁸ *Houston & Texas Central Railway Co. v. East*, 81 S.W. 279 (Tex. 1904).

¹³⁹ *East*, 77 S.W. 646, 648 (Tex. Civ. App. 1903) *rev'd sub nom. Houston & Texas Central Railway Co. v. East*, 81 S.W. 279 (Tex. 1904).

¹⁴⁰ *Id.* at 281 (citing *Pixley v. Clark*, 35 N.Y. 520 (1866)).

¹⁴¹ See *City of Sherman v. Pub. Util. Comm'n*, 643 S.W.2d 681, 686 (Tex. 1983) (calling the right to capture a "corollary to absolute ownership of groundwater.")

¹⁴² *Acton v. Blundell*, 12 Mees. & W. 324, 354, 152 Eng. Rep. 1223, 1235 (Ex. Ch. 1843).

The Texas Supreme Court's adherence to *damnum absque injuria*¹⁴³ gave rise to its announcement that "No action lies against the owner for interfering with or destroying percolating or circulating water under the earth's surface."¹⁴⁴ The court's refusal to provide any judicial remedy to a landowner whose well dried up as a result of an adjoining landowner's pumping of groundwater using wells on his property established that the defendant's only remedy is his equal right produce. Moreover, by considering percolating water as part of the soil and subject to the overlying landowner's absolute ownership, the court recognized a landowner's ability to sever groundwater from the surface by reservation or deed.¹⁴⁵ The rule of capture merely "explains the manner in which a landowner may exercise her property rights in groundwater, not whether those property rights exist."¹⁴⁶

The Supreme Court identified two policy-driven reasons, the hidden nature of underground development and effects on development, which compelled the rule of capture.¹⁴⁷ In addition, the Texas Supreme Court's policy of non-intervention seemed palatable considering the lack of clarity on the relationship between surface and ground water. The court assumed that the return flow from water producers' on-premise uses sufficiently restored aquifer levels so as to only temporarily inhibit production by a landowner like East.¹⁴⁸

¹⁴³ "An injury without remedy."

¹⁴⁴ *East*, 81 S.W. at 281.

¹⁴⁵ See *Texas Co. v. Burkett*, 296 S.W. 273, (Tex. 1927) (holding that a water right constitutes an interest in real property)

¹⁴⁶ Brief of Amicus Curiae Texas Wildlife Association at 7, *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814 (Tex. 2012) (No. 08-0964)..

¹⁴⁷ *East*, 81 S.W. at 281 (quoting *Frazier v. Brown*, 12 Ohio St. 294, 311 (Ohio 1861) ("[T]he existence, origin, movement, and course of such waters . . . are so secret, occult, and concealed that an attempt to administer any set of legal rules in respect to [it] would be involved in hopeless uncertainty, and would, therefore be practically impossible").

¹⁴⁸ Corwin W. Johnson, *Texas Groundwater Law: A Survey and Some Proposals*, 22 NAT. RESOURCES. J. 1017, 1017 (1982).

Ultimately, an injured landowner's sole remedy was self-help. Essentially, East could construct a well powerful enough to pull water from the railroad company's well, which likely would be prohibitively expensive.

II. Groundwater Conservation Districts: The Conservation Amendment

By the turn of the 20th century, Texas's commercial and agricultural actors recognized that water shortages were frustrating the state's population and industrial growth.¹⁴⁹ In 1904, legislators responded by amending Article III § 52 of the state's Constitution to provide for the creation of conservation districts "which could be established for the permanent improvements including conservation projects and road-building projects. These districts could issue bonds in an amount not exceeding 25% of the total assessed value of real property lying within the district, and could levy a tax at a rate sufficient to pay the principal and interest on such bonds."¹⁵⁰ Less than 15 years later, legislators realized that the restrictions on issuing bonds constrained the districts' ability to meet water-conservation and road-building objectives. In 1917, after seven years of devastating droughts, the legislature removed the limitation on indebtedness and added Article XVI § 59, which "authorize[s] all such indebtedness as may be necessary to provide all improvements and the maintenance thereof requisite to the achievement of the purposes of this amendment."¹⁵¹

Most significantly, however, Article XVI, § 59 established that:

"The conservation and development of all natural resources of this State . . . and the preservation and conservation of all such natural resources of the State are each and all hereby declared public rights and duties; and the Legislature shall pass all such laws as may be appropriate thereto."

The Conservation Amendment, as it has been affectionately dubbed, sought to allow the state to assert ownership

¹⁴⁹ TEX. CONST. ART. III, § 52, interp. commentary (Vernon) (discussing the amendment's adoption)

¹⁵⁰ *Id.*

¹⁵¹ TEX. CONST. ART. XVI §59(c)

Much of the uncertainty surrounding rights to groundwater resulted from Texas's continued adherence to the rule of capture despite its creation of local districts to regulate groundwater pumping. As the Water Code declares,

A. *Texas Co. v. Burkett* (Tex. 1927).

In 1927, a Texas Supreme Court decision involving a breach of contract claim clarified the relationship between property rights in groundwater and ownership of the surface estate.¹⁵² In *Texas Co. v. Burkett*, the court declared the presumption that percolating groundwater is “the exclusive property of the owner of the surface of the soil, and subject to barter and sale as any other species of property.”¹⁵³ Thus, a landowner was free to sell groundwater produced from his land for off-site industrial use. In addition, the court specified what constitutes groundwater: water that is neither consists of “sufficient magnitude to be valuable to riparian proprietors” nor “add[s] perceptibly to the general volume of water in the bed of the stream.”¹⁵⁴

III. “Absolute” Ownership: Exceptions to the Rule of Capture

Despite its label, a landowner's rights to groundwater are not without limitation. Commentators have suggested that the term “absolute” reflected the court's effort to distinguish its ruling in *East* from the American rule of reasonable use, which requires groundwater to be shared among all legitimate claimants. Accordingly, the American rule entitles a landowner to appropriate groundwater, but does not permit appropriations in excess of a reasonable and beneficial use of his land, especially when the use is injurious to others.¹⁵⁵ In contrast, the rule of absolute ownership contains no such restriction.

¹⁵² *Texas Co. v. Burkett*, 296 S.W. 273, 278 (Tex. 1927).

¹⁵³ *Id.* at 278 (citing Long on Irrigation, ss 45, 47).

¹⁵⁴ *Id.*

¹⁵⁵ *Spear T Ranch, Inc. v. Knaub*, 691 N.W.2d 116, 128 (Neb. 2005).

A. Malice

Historically, the rule of capture has been administered on the condition that the taking of water was not maliciously injurious. Although this “malice exception” has existed in Texas since 1904’s iteration of *Acton v. Blundell* in the *East* case, the test to determine malice is so burdensome that it has been characterized as impossible to meet.¹⁵⁶ A complaining-landowner seeking to prove malice must demonstrate that the defendant-landowner “maliciously [took] water for the sole purpose of injuring [his] neighbor.”¹⁵⁷ Therefore, the complaining-landowner’s burden is nearly impossible to overcome because he must demonstrate that his neighbor had no other possible alternative reason for taking the water.

B. Waste

The court recognized a second exception to the rule of capture in the 1955 case *City of Corpus Christi v. City of Pleasanton*.¹⁵⁸ The City of Pleasanton (Pleasanton) sought to enjoin the Lower Nueces River Supply Co. and the City of Corpus Christi (Corpus Christi) from transporting percolating groundwater in a manner constituting waste.¹⁵⁹ The court concluded that the rule of capture did not provide immunity for wastefully transporting groundwater, considering adoption in 1917 of the Article 7602 of the Civil Statutes, Article 846 of the Penal Statutes, and the Conservation Amendment.¹⁶⁰ Article 7602 of the Civil Statutes and Article 846 of the Penal Statutes were enacted to make the transportation of water legal unless the water is

¹⁵⁶ Lana Shannon Shadwick, Note, *Obsolescence, Environmental Endangerment and Possible Federal Intervention Compel Reformation of Texas Groundwater Law*, 32 S. TEX. L. REV. 641, 662 (1991)

¹⁵⁷ *City of Corpus Christi v. City of Pleasanton*, 276 S.W.2d 798, 801 (Tex. 1955); see *Friendswood Dev. Co. v. Smith-Southwest Indus., Inc.*, 576 S.W.2d 21, 26 (Tex. 1978); *Houston & Tex. Cent. Ry. Co. v. East*, 81 S.W. 279, 282 (Tex.1904).

¹⁵⁸ *City of Corpus Christi*, 276 S.W.2d 798.

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

unlawfully used.¹⁶¹ The Conservation Amendment declared the conservation of Texas’s natural resources as a public right and duty.

The court interpreted the Articles to mean what they say; thus permitting transportation of water by “river, creek or other natural water course or drain, superficial or underground channel, [or] bayou.”¹⁶² At issue, according to the court, was only “whether it is waste to transport water produced from artesian wells by flowing it down a natural stream bed and through lakes with consequent loss of water by evaporation, transpiration, and seepage.”¹⁶³

Similar to the malice exception, this exception for waste appears to provide a limitation that is only theoretical. In *Corpus Christi*, 75% of the groundwater was lost during transportation to the place where it was to be lawfully used. A dissenting justice pointed out that under the majority’s reasoning, if the use is lawful there could be no waste.¹⁶⁴ The dissent further hypothesized that “[t]he same reasoning would hold no waste occurs if only 10 gallons [of the 10,000,000 gallons pumped daily] reach their destination if this ten gallons is used lawfully.”¹⁶⁵ In addition, the dissenting judge further criticized the majority’s restrictive definition of “waste,” thereby disarming the statutes’ capacity to carry out their intended purpose of water conservation.¹⁶⁶ Ultimately, the case resulted in little more than a mere recital of “what was tacit in *East* – that the rule of capture is not absolute[.]”¹⁶⁷ The court held that the “English” rule of capture, as adopted in *East*, included “only such limitations as existed in the common law” -- or in other words – “the owner may not maliciously take water for the sole purpose of

¹⁶¹ *Id.*

¹⁶² *Id.* at 295.

¹⁶³ *Id.* at 289.

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* at 804.

¹⁶⁶ *Id.*

¹⁶⁷ *Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 827 (Tex. 2012), *reh'g denied* (June 8, 2012).

injuring his neighbor or wantonly and willfully waste it.”¹⁶⁸ While the loss of water during transportation may constitute waste, the court exhibited its reluctance to find waste if the transporters intended to put the water to a lawful use.

C. Negligent Subsidence Exception

In a case in 1978, *Friendswood Development Co. v. Smith-SW Industries*, the court for the first time imposed a duty on all landowners producing water from their overlying lands to do so “in a manner that will not negligently damage or destroy the lands of others.”¹⁶⁹ The court explained that the rule of capture is not absolute because “ownership of underground water comes with ownership of the surface; it is part of the soil;”¹⁷⁰ thus carving out an additional exception for negligently causing subsidence to another’s land. In the same year of the decision in *Friendswood*, a legislative amendment to Article XVI § 59(c) added subsidence control to list of purposes that groundwater districts may be created to address.¹⁷¹

Similar to the burdensome standards for proving malice and waste, the standard to demonstrate negligence was difficult to overcome. The court announced, “if the landowner’s manner of withdrawing ground water from his land is negligent, willfully wasteful, or for the purpose of malicious injury, and such conduct is a proximate cause of the subsidence of the land of others, he will be liable for the consequences of his conduct.”¹⁷²

The court revisited the rule of capture in a “factual setting virtually identical to that in *East*”¹⁷³ in the 1999 case *Sipriano v. Great Spring Waters of America, Inc.* The court held that “the rule of capture provides that, absent malice or willful waste, landowners have the right to

¹⁶⁸ *Id.* at 294 (internal citations omitted).

¹⁶⁹ *Id.*

¹⁷⁰ *Friendswood Dev. Co. v. Smith-Southwest Indus., Inc.*, 576 S.W.2d 21, 30 (Tex. 1978).

¹⁷¹ See Act of May 26, 1973, 63d Leg., R.S., ch. 598, 1973 Tex. Gen. Laws 1641.

¹⁷² *Friendswood Dev. Co.*, 576 S.W.2d at 30.

¹⁷³ *Id.* quoting *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814 (2012).

take all the water they can capture under their land and do with it what they please, and they will not be liable to neighbors even if in so doing they deprive their neighbors of the water's use."¹⁷⁴

D. Surface Streamwater Interference

The court applied the rule of capture to protect groundwater uses that interfere with surface water rights.¹⁷⁵ In the 1957 *Comanche Springs* case, a group of surface water rights holders located upstream from Comanche Springs asked the court to enjoin downstream groundwater irrigators from interfering with the normal flow of Comanche Springs. The defendants' drilling significantly reduced the surface flow of Comanche Springs,¹⁷⁶ but the court disagreed with the plaintiffs' claim that they were entitled to access to the normal flow of Comanche Springs by virtue of actual and statutory appropriation. In the court's view, protection of the plaintiff surface water rights at the expense of the defendants would extend the plaintiffs' (surface water) appropriations to include groundwater.¹⁷⁷

This case illustrates the inherent flaws of bifurcated water regulation. Because groundwater uses affect surface waters, application of the rule of capture consequently deprived the holders of rights to the surface water. As a result, the plaintiff's in *Comanche Springs* were dispossessed of vested rights to surface water.

IV. Endangered Species Act

The Endangered Species Act of 1973 (ESA) acted as the catalyst for the overhaul of Texas's groundwater laws. For decades, the courts had been inundated with disputes among the

¹⁷⁴ *Sipriano v. Great Spring Waters of America, Inc.*, 1 S.W.3d 75 (1999).

¹⁷⁵ *Pecos County Water Control and Improvement Dist. No. 1 v. Williams*, 271 S.W.2d 503 (Tex. Civ. App.--El Paso 1954).

¹⁷⁶ *Id.* at 505.

¹⁷⁷ *Id.* at 506.

two million people who rely exclusively on the Edwards Aquifer for water.¹⁷⁸ The most common conflicts arose “between rural and urban interests, and between pumpers and those living downstream of its spring outlets who depend on springflows for their surface water.”¹⁷⁹ Aside from its plentiful water supply, the aquifer’s ecosystems contained one of the greatest known diversities of species, several of which had never been observed anywhere else.¹⁸⁰

In 1991, the Sierra Club filed suit in federal court against the Secretary of Interior (Secretary) and the United States Fish and Wildlife Service (SFWS) alleging that the defendants had failed to prevent takings of endangered species by permitting excessive withdrawals of the Comal and San Marcos Springs. The court determined that “irreparable harm to endangered and threatened species, and to human interests dependent on Edwards and Comal and San Marcos Springs, is likely to occur if the USFWS does not promptly determine and communicate the minimum springflows and Aquifer levels required to be protected under the ESA.”¹⁸¹ Moreover, the court concluded that continuous springflows of the Comal Springs could be sufficiently maintained, even during drought, if pumping was limited to roughly 200,000 acre-feet per year.¹⁸² The court also accepted testimony that indicated that if groundwater pumping were to continue unabated, “[t]he Comal Springs in theory could be in danger of drying up again by the summer of 1993 or by the summer of 1994.”¹⁸³ To address these potential impacts, the court ordered the Texas Water Commission (TWC) to prepare a plan that assures that the waters of the Comal and San Marcos Springs will not fall below the USFWS-identified minimum water levels

¹⁷⁸ Todd H. Votteler, *The Little Fish That Roared: The Endangered Species Act, State Groundwater Law, and Private Property Rights Collide over the Texas Edwards Aquifer*, 28 ENVTL. L. 845, (1998).

¹⁷⁹ *Id.* at 846.

¹⁸⁰ *Id.*

¹⁸¹ *Sierra Club v. Lujan*, MO-91-CA-069, 1993 WL 151353 (W.D. Tex. 1993).

¹⁸² *Id.*

¹⁸³ *Id.* at ¶ 213.

necessary to prevent jeopardy to listed species.¹⁸⁴ The court alerted the TWC that its failure to adopt a satisfactory plan that incorporates the principles of the Endangered Species Act would result in the federal government's administration of the Edwards Aquifer.¹⁸⁵

Texas successfully warded off federal intervention. Less than four months later, the Texas Legislature responded by enacting Senate Bill 1477 (SB-1477), which created the Edwards Aquifer Authority to manage the aquifer. The formation of the Edwards Aquifer Authority seemingly ended the rule of capture in the region.

A. Senate Bill 1

In 1997, the Texas Legislature enacted Senate Bill 1 (SB-1) to address the state's inability to combat the effects of drought and the growing population's demands on a water supply already projected to near exhaustion. In 1996, drought cost Texas an estimated \$6.5 billion in losses, more than one-third of which were suffered by agricultural sector.¹⁸⁶ In addition, comprehensive studies indicated that Texas's population was likely to double in the next 50 years¹⁸⁷ and the Texas Water Development Board (TWDB) was predicting a statewide water shortage if consumption continued at the current rate.¹⁸⁸ SB-1 represented a comprehensive water resource planning, management, and development bill, which strengthened existing GCDs' capacity to effectively manage its resources and made it easier to create new GCDs in places of need.

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ Martin Hubert & Bob Bullock, *Senate Bill 1, the First Big and Bold Step Toward Meeting Texas's Future Water Needs*, 30 Tex. Tech L. Rev. 53, 55 (1999).

¹⁸⁷ Steve H. Murdock et al., *Texas Challenged - The Implications for Populations Change for Public Service Demand in Texas* 4-9 (1996).

¹⁸⁸ See Texas Water Development Board et al., *Water for Texas Today and Tomorrow: Legislative Summary of the 1996 Consensus-Based Update of the State Water Plan 1* (Jan. 1997).

SB-1 marked the first time that legislators focused their efforts on conserving existing groundwater sources. Whereas previous efforts concentrated on the development of untapped water sources, SB-1's primary objectives were "(1) more aggressive management of [the] resource at the local level,¹⁸⁹ (2) more resources for management,¹⁹⁰ and (3) more accountability when that management is undertaken."¹⁹¹

SB-1 adopted the principle that those who are nearest to the resource are most able to effectively manage it to govern groundwater management. Moreover, SB-1 was explicit in doing so, and the bill proclaimed Groundwater Conservation Districts (GCD's) as the State's "preferred method of groundwater management."¹⁹² These local regulatory entities were required to develop local groundwater plans that were consistent with a broader regional approach of the applicable regional water planning group. SB-1 divided the state into 16 "regional water planning groups" which were tasked with projecting regional surface water and groundwater needs. SB-1 required each planning group to submit a detailed plan of region's current and future water needs every five years to the Texas Water Development Board (TWDB), who used that information to develop the State's Water Plan.¹⁹³

The bill also attempted to ensure the creation of GCDs in the areas of most concern. To this end, SB-1 created a mechanism to streamline the designation of a Priority Groundwater Management Area (PGMA), defined as "those areas of the state that are experiencing or that are

¹⁸⁹ Martin Hubert & Bob Bullock, *Senate Bill 1, the First Big and Bold Step Toward Meeting Texas's Future Water Needs*, 30 TEX. TECH L. REV. 53, 65 (1999); See § 4.28, 1997 Tex. Gen. Laws 3645-46 (amending Subchapter D, Chapter 36 of Tex. Water Code Ann. by adding §§ 36.071-.072).

¹⁹⁰ See § 4.34, .39, 1997 Tex. Gen. Laws 3649, 3652 (codified at Tex. Water Code Ann. §§ 36.159-.161, .371-.372).

¹⁹¹ See Texas Natural Resource Conservation Commission, *Groundwater Conservation Districts: Report to the 75th Legislature 5* (Feb. 1997). [hereinafter TNRCC Report]

¹⁹² TEX. WATER CODE ANN. § 36.0015.

¹⁹³ See Act of June 1, 1997, 75th Leg., R.S., ch. 1010, § 1.02, sec. 16.053(i), 1997 Tex. Gen. Laws 3610, 3611-12 (current version at TEX. WATER CODE ANN. § 16.053(i) (Vernon 2000 & Supp. 2006)).

expected to experience, within the immediately following 50-year period, critical groundwater problems, including shortages of surface water or groundwater, land subsidence resulting from groundwater withdrawal, and contamination of groundwater supplies.”¹⁹⁴ ,

The bill intended to equip a GCD with more authority and resources while also demanding more accountability.¹⁹⁵

SB-1’s most significant flaw was its failure to address the rule of capture. Therefore, in the many areas of Texas that were not subject to a GCD the rule of capture remained in effect. Often, areas subject to GCDs were adjacent to areas subject only to the Rule of Capture. Furthermore, by empowering GCDs to promulgate their rules and management practices, SB-1 neglected to ensure uniform regulatory practices among the GCDs. This opened the door for GCDs to enact rules to favor their own interests without sufficiently considering the effect of those rules outside the district.

B. Senate Bill 2

The enhanced the enforcement authority provided to GCDs by Senate Bill 2 (SB-2) delivered a Spartan blow to the rule of capture. Forty days before SB-2’s expected passage, the court held that GCD’s were not authorized to regulate groundwater withdrawals based on tract size.¹⁹⁶ Legislators reacted quickly; the Water Code was amended to authorize GCD’s to limit the amount of water produced based on acreage or tract size.¹⁹⁷ In addition, SB-2 authorized GCDs to regulate both the spacing and production of wells and consider historic use when

¹⁹⁴ TEX. WATER CODE § 35.007.

¹⁹⁵ The State Auditor can audit a GCD one year after its initial certification and every five years thereafter to determine whether the “district is actively engaged in achieving the objectives” of its management plan. *See* Tex. Water Code § 36.302(c).

¹⁹⁶ *See S. Plains Lamesa R.R. v. High Plains Underground Water Conservation Dist. No. 1*, 52 S.W.3d 770, 779-80 (Tex. App.-Amarillo 2001, no pet.).

¹⁹⁷ *See* TEX. WATER CODE § 36.116.

promulgating rules to limit groundwater production.¹⁹⁸ As a result of a GCD's increased regulatory authority under SB-2, landowners were left with a "bundle of sticks" that could no longer be characterized as absolute owners.

In addition, SB-2 streamlined the process for designation of GMAs and PGMAs¹⁹⁹, set firm deadlines for designations, increased the TWDB's responsibility to make certain designations, and established procedures for the joint management among GCDs sharing an aquifer.²⁰⁰ Specifically, SB02 directed the TWDB to demarcate 16 regional planning committees and appointed individuals representing 11 different public interest groups to serve as members of the regional water planning groups (RWPG).

V. Guitar Holding Co., L.P. v. Hudspeth Cnty. Underground Water Conser. Dist. No. 1, 263 S.W.3d 910 (Tex. 2008)

Guitar Holding Co. challenged the Hudspeth County Underground Water Conservation District's (Hudspeth District) authority to adopt rules that provide preferential rights to sell and transfer groundwater. More specifically, the court articulated the issue as "whether one who has been granted the right to produce groundwater from an aquifer underlying a groundwater conservation district is required to surrender that right of production to others depending on whether the water produced is consumed within the district or transferred out of the district."²⁰¹ Guitar Holding Co.'s suit resulted from Hudspeth District's adoption of new rules intended to restore the Bone Springs-Victorio Peak Aquifer (Bone Springs) to its historically optimal

¹⁹⁸ *Id.*

¹⁹⁹ *See Id.* at § 36.0151.

²⁰⁰ *See Id.* at 36.1086.

²⁰¹ Brief on the Merits for Respondents & Intervenor Named Below at 1, *Guitar Holding Co. v. Hudspeth County Underground Water Conservation Dist. No. 1*, 263 S.W.3d 910 (Tex. 2008).

level.²⁰² The new rules provided that a landowner's right to withdraw groundwater was calculated by the landowner's prior irrigation during a statutorily-defined "existing and historic use period."²⁰³

A. Hudspeth's Rules

Hudspeth District's rules classified each groundwater producer as either a (1) statutorily exempt user, (2) existing and historic user, or (3) new user.²⁰⁴ As an added consideration, "The right to produce groundwater from completed, non-exempt wells was linked directly to the aquifer's level, although groundwater production limitations were to operate differently depending on the type of permit held by the well owner."

Hudspeth District recognized three types of permits. Validation permits essentially validated – or "recognized" - existing or historical use.²⁰⁵ Operating permits were required for wells that were ineligible for validation permits. Finally, transfer permits authorized the transfer of water out of the district. The regulations authorized landowners holding a validation permit "to withdraw three to four acre-feet per year, depending on the aquifer's elevation, for every acre irrigated during a designated historic and existing use period."²⁰⁶ The historic and existing use period spanned the ten-and-a-half years between January 1, 1992 and May 31, 2002.

Landowners with validation permits who did not irrigate during the historic use period were "entitled to produce the maximum of amount of water beneficially used in any one year during

²⁰² See Old Rules of Hudspeth Cnty. Underground Water Conser. District No. 1 (Dec. 7, 1990), Rules 1.1, 6.12(f), and 6.12(i).

²⁰³ *Id.*

²⁰⁴ New users "might also include historic users seeking to increase consumption." *Id.* at 914.

²⁰⁵ Hudspeth County Underground Water Conservation District No. 1, "Management Plan," (wells operating before the adoption of the District's rules on May 31, 2002 were generally entitled to validation permits.)

²⁰⁶ *Guitar Holding Co., L.P.* at 914.

the period.”²⁰⁷ On the other hand, an operating permit enabled new wells to produce a quantity of water based upon the landowner’s surface acreage. This right to produce from the new well was further conditioned on the water level of Bone Spring. The court explained, “unlike the holder of a validation permit whose production rights are guaranteed, the holder of an operating permit has no right to groundwater until the aquifer reaches a designated average water level.”²⁰⁸

Although any landowner with a validation or operating permit could obtain a transfer permit, landowners with a validation permit who had irrigated during the historic use period received “substantially greater transfer rights under the rules than other landowners because they receive[d] substantially greater guaranteed allocations of groundwater than other landowners.” Landowners who held operating permits were entitled to produce water based upon the amount of his surface acreage, but only if there was enough water in Bone Springs. A landowner with an operating permit received no guaranteed allocation because his right was conditioned on aquifer water levels. Therefore, a landowner with an operating permit potentially had no right “to transfer water when the aquifer fails to reach the designated elevation.”²⁰⁹

Guitar Holding Co. received validation permits for fifteen existing wells and applied to drill 52 new wells. Despite being one of Hudspeth County’s largest landowners, Guitar Holding

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹

| Average Water Elevation | Validation Permit Allocation | Operating Permit Allocation |
|--|--|--|
| Greater than 3,580 feet | 4.0 acre-feet per acre per year | Pro-rata up to 4.0 acre-feet per acre per year |
| Greater than 3,570 feet but less than or equal to 3,580 feet | 4.0 acre-feet per acre per year | None |
| Equal to or greater than 3,565 feet but less than or equal to 3,570 feet | Pro-rata between 3.0 and 4.0 acre-feet per acre per year | None |
| Less than 3,560 feet | For irrigation, 3.0 acre-feet per acre per year; pro-rata for all other uses | None |

Co.'s validation permits did not entitle the company to as much water production as many of the county's smaller landowners. Guitar's validation permits reflected the company's infrequent irrigation during the existing or historic use period.

The court's analysis began with a summary of a groundwater conservation district's authority. The court noted that groundwater conservation districts are "the state's preferred method of groundwater management,"²¹⁰ and Chapter 36 of the Texas Water Code provides these districts with a broad authority to "manage, conserve, and protect groundwater resources through rulemaking and permitting."²¹¹ Moreover, "each groundwater conservation district is required to develop a comprehensive management plan with stated goals, such as, promoting the most efficient use of groundwater, preventing waste and subsidence, and addressing conjunctive surface water management issues, natural resource issues, drought conditions, and conservation."²¹² As a groundwater conservation district, the Hudspeth District was required to consider all groundwater uses and needs to develop rules that are fair and impartial.²¹³ The adopted plan must include a permitting system "for the drilling, equipping, operating, or completing of wells or for substantially altering the size of wells or well pumps."²¹⁴ A district is also authorized to regulate well spacing and water production, and may consider "setting production limits; limiting the amount of water produced based on acreage or tract size; limiting the amount of water produced from a defined number of acres assigned to an authorized well site; limiting the maximum amount of water produced on the basis of acre-feet per acre or gallons per minute per well site per acre; managed depletion, or a combination of any of

²¹⁰ TEX. WATER CODE § 36.0015.

²¹¹ TEX. WATER CODE §§ 36.0015, 36.101(a), and 36.113(a)

²¹² *Id.* at § 36.1071(a)(1)-(7).

²¹³ *Id.* at § 36.101(a)

²¹⁴ *Id.* at 36.113(a)

those.”²¹⁵ In addition, when promulgating rules that limit groundwater production, Hudspeth District “may preserve historic or existing uses of groundwater in the district to the maximum extent practicable consistent with its comprehensive management plan.”²¹⁶ A final requirement mandated that Hudspeth District “develop its plan using the best available data and must forward its plan to the regional water planning group for consideration in its planning process.”²¹⁷ Hudspeth District’s plan must then be certified by the Texas Water Development Board.²¹⁸

In four administrative appeals, Guitar Holding Co. challenged the facial validity of Hudspeth District’s rules concerning production and transfer permits and raised as-applied challenges to the District’s rules regarding permits to four other landowners in the district. After the district court and Court of Appeals upheld the validity of Hudspeth District’s rules and issued permits, Guitar Holding Co. complained the Texas Supreme Court that “[Hudspeth] District has misapplied its limited authority to preserve existing or historic groundwater use within the district and in effect granted certain irrigators a perpetual franchise to transfer and sell Hudspeth County groundwater.”²¹⁹ In addition, Guitar Holding Co. also argued that Hudspeth District’s transfer rules were not “fair, impartial, and nondiscriminatory” as required by Section 36.122(q) of the Texas Water Code²²⁰ because the rules “misapply the principles of prior appropriation to groundwater transfer rights.”²²¹ Finally, Guitar Holding Co. argued that the transfer rules violate the Equal Protection Clause because “the Hudspeth District’s classification of landowners’

²¹⁵ *Guitar Holding Co., L.P. v. Hudspeth Conservation Dist.* 263 S.W.3d 910, 913; *see* TEX. WATER CODE § 36.116(a)(2)(A)-(F).

²¹⁶ *Id.*; *See* TEX. WATER CODE § 36.116(b).

²¹⁷ *Id.*; *See* TEX. WATER CODE § 36.1071(b).

²¹⁸ *Id.*; *See* TEX. WATER CODE § 36.1072(d).

²¹⁹ *Id.*

²²⁰ *Pet.* at 20.

²²¹ *Id.* at 25.

economic and property rights on the basis of past use of those rights are lawful only if it is rationally related to a legitimate governmental purpose.”²²²

The court next addressed Guitar Holding Co. and Hudspeth’s Districts arguments involving the meaning of Section 36.113(e) of the Water and determined that “both amount and purpose are listed in Chapter 36 as recommended elements for all well permits.”²²³ More specifically, Section 36.113(e) of the Water Code provides that more restrictive conditions may be imposed on new permit applications if the limitations (1) are applied uniformly to all subsequent new permit applications, (2) bear a reasonable relationship to the existing district management plan, and (3) are reasonably necessary to protect existing use.”²²⁴ *Guitar Holding Co.* argued that the Water Code only authorizes “a district to preserve historic or existing use of the same type or purpose” and “[b]ecause transferring water out of the district is a new use, it cannot be preserved or “grandfathered.”²²⁵ Hudspeth District maintained that the provision granting it authority to preserve historic or existing use makes sense only if “use” refers to an amount of groundwater, not its purpose.”²²⁶

The court settled the parties’ competing interpretations of the Water Code by jointly examining the Water Code’s definitions of “evidence of historic or existing use”²²⁷ and “use for a beneficial purpose.”²²⁸ As previously mentioned, the court concluded that when read together, “these definitions indicate that the amount of groundwater withdrawn and its purpose are both

²²² *Id.* at 26

²²³ *Id.*; See TEX. WATER CODE at § 36.1131(a).

²²⁴ *Id.* (quoting TEX. WATER CODE § 36.113(e)(1)-(3)).

²²⁵ *Id.* at 915.

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ Includes provides list of specific purposes provided in the Water Code and also “any other purpose that is useful and beneficial to the user.” Tex. Water Code § 36.001(9).

relevant when identifying an existing or historical use to be preserved.”²²⁹ Ultimately, the court concluded, “A district's discretion to preserve historic or existing use is accordingly tied both to the amount and purpose of the prior use.”²³⁰

Next, the court turned to the parties’ positions on whether Hudspeth District’s issuance of transfer permits are from new permit applications. Guitar Holding Co. argued that “transferring groundwater out of the district is a new use for which a new application must be made, and that as a new permit application, the District must comply with the requirements of Section 36.113(e)” of the Water Code.²³¹ Hudspeth District insisted that its rules fully complied with Section 36.122 of the Water Code, which provides that provides that “a district may not impose more restrictive permit conditions on transporters than the district imposes on existing in-district users.”

The court agreed with Guitar Holding Co. and held that Hudspeth District’s transfer rules exceeded the district’s statutory authority. The court explained:

“Although there is existing irrigation use in the district, the transfer rules do not protect that existing use. Instead, the transfer rules permit in-district irrigators to convert their protected existing use to an entirely new use, that is, to transfer it out of the district for municipal and industrial purposes. Once the groundwater allocated for existing irrigation use is transferred outside the district, however, the protected existing use ends, as does the justification for protecting that use. Rather than protect historic or existing use then, the District's transfer rules, in essence, grant franchises to some landowners to export water while denying that right to others. Because the limitations are not uniformly applied to these new applications and are not necessary to protect existing uses, the District's transfer rules exceed the statutory authorization and are thus invalid.”²³²

²²⁹ *Supra.* note 223 at 916; “evidence that is material and relevant to a determination of the amount of groundwater beneficially used” during the relevant time period. Tex. Water Code § 36.001(29).”

²³⁰ *Supra.* note 223 at 916.

²³¹ *Id.* at 917

²³² *Id.*

After reversing the judgment in the Court of Appeals, the court remanded the case, but the parties were able to reach a stipulated agreement.

B. Conflict Between Municipalities and Conservation Districts - *City of Aspermont v. Rolling Plains Conservation Dist.* (2011).

The *City of Aspermont v. Rolling Plains Groundwater Conservation District* decision may provide the most revealing illustration of the conflict between GCDs and the state's largest appropriators, municipalities. The City of Aspermont (Aspermont), located in Stonewall County, had been producing two-thirds of its water needs from wells located in Haskell, Baylor, and Knox counties. Haskell, Baylor, and Knox counties are located within the Rolling Plains Groundwater Conservation District (Rolling Plains GCD). The Rolling Plains GCD sued Aspermont for water transportation fees and a declaration that Aspermont must comply with its rules.²³³ However, Section 36.102(a) of the Water Code provides that “[a] district may enforce this chapter and its rules by injunction, mandatory injunction, or other appropriate remedy in a court of competent jurisdiction.”²³⁴ Nevertheless, Rolling Plains GCD argued that Aspermont, despite being a political subdivision of the state, is not entitled to governmental immunity.²³⁵ Rolling Plains GCD contended that Section 36.115 of the Water Code, which provides that no “person” may take certain actions without obtaining a permit from the District, waives immunity because under the Code Construction Act, a “person” includes a “governmental subdivision or agency.”²³⁶ Unconvinced by this argument, the Texas Supreme Court echoed the Court of Appeals’ conclusion that Section 36.102 “does not specifically authorize a suit against a political subdivision or a municipality; nor, for that matter, does it specifically authorize the assessment of

²³³ *Rolling Plains Groundwater Conservation Dist. v. City of Aspermont*, 353 S.W.3d 756 (Tex. 2011).

²³⁴ Tex. Water Code § 36.102(a).

²³⁵ *Aspermont*, 353 S.W.3d at 759.

²³⁶ *Id.*; See TEX. WATER CODE § 36.115; Tex Gov't Code § 311.005(2).

penalties against a political subdivision or municipality.”²³⁷ The court noted, “Even if the incorporation of the Code Construction Act’s definition of “person” into the Water Code created an ambiguity, we must construe ambiguities in a manner that retains immunity.”²³⁸ Ultimately, the court determined that the Water Code did not manifest the legislature’s clear and unambiguous intent to waive governmental immunity for cities like Aspermont.

Finally, Rolling Plains GCD argued that if Aspermont cannot be sued for its alleged noncompliance with the Water Code, Rolling Plains GCD will be unable to serve the purpose for which it had been created: the effective management of its aquifers.²³⁹ In response to this rather compelling argument, the court punted to the legislature, or perhaps honored the separation of powers doctrine, maintaining that it is “the Legislature [who] is best positioned to waive immunity, and it can authorize retrospective relief if appropriate.”²⁴⁰

Despite rejecting the Rolling Plains GCD’s textual and policy-based arguments, the court noted that even if governmental immunity had not been waived, “suits to require state officials to comply with statutory or constitutional provisions are not prohibited by sovereign immunity, even if a declaration to that effect compels the payment of money.”²⁴¹ In such cases, the court has never ordered retroactive relief, which Rolling Plains GCD sought in the form of payment for injuries already suffered. The court’s decision arrogated GCD’s to use the threat of litigation for damages against municipalities that refuse to abide with GCD regulations.

²³⁷ *Id.*; (quoting *Aspermont.*, 258 S.W.3d 231, 234 (Tex. App.--Eastland 2008)).

²³⁸ *Aspermont*, 353 S.W.3d at 759 (citing *Wichita Falls State Hosp. v. Taylor*, 106 S.W.3d 692, 701 (Tex. 2003)).

²³⁹ See *Aspermont*, 353 S.W.3d at 760.

²⁴⁰ *Id.* (quoting *City of El Paso v. Heinrich*, 284 S.W.3d 366, 377 (Tex. 2009)).

²⁴¹ *Aspermont*, 353 S.W.3d at 760 (quoting *City of El Paso v. Heinrich*, 284 S.W. 3d at 377).

VI. Regulatory Takings – *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814, 837 (Tex. 2012).

In *Edwards Aquifer Authority v. Day*, the court sought to identify “the point at which water regulation unconstitutionally invades the property rights of landowners.”²⁴² At issue were the Edwards Aquifer Authority’s (EA-Authority) comprehensive regulations to manage and conserve the aquifer.²⁴³ The Edwards Aquifer Authority Act (EAA Act) of 1993 created the EA-Authority and authorized it to implement regulations to manage and preserve the aquifer.²⁴⁴ The EA-Authority “performs governmental functions and exercises the state's police power essentially as [an agent] of the State to protect the health, safety, comfort, and welfare of the public, specifically by regulating and managing the Aquifer for the overall welfare of the public.”²⁴⁵ The EAA Act imposes a cap on the amount of annual withdrawals from the aquifer and limits the issuances of groundwater withdrawal permits to existing users. To obtain a permit, an existing user must prove that he had pumped and beneficially used water from the Edwards Aquifer during the historical period, identified as between June 1, 1972 and May 31, 1993. It was already settled by a 1996 decision that the EAA was, on its face, constitutional.²⁴⁶

In 1994, two landowners, Burrell Day and Joel McDaniel (collectively, Day), purchased land overlying the Edwards Aquifer. In 1956, a well was drilled onto Day’s property.²⁴⁷ The well was used for irrigation until the early 1970s. Sometime before 1983, the pump was removed.²⁴⁸ However, the well continued to flow under artesian pressure and while the bulk of it

²⁴² *Edwards Aquifer Authority v. Day*, S.W.3d 814, 837 (Tex. 2012) (quoting *Barshop v. Medina County Underground Water Conservation District*, 925 S.W.2d 618, 626 (Tex. 1996)).

²⁴³ 1993 Tex. Gen. Laws 2350, as amended

²⁴⁴ *Barshop v. Medina County Underground Conservation Dist.*, 925 S.W.2d 618 (Tex. 1996)

²⁴⁵ Darcy Alan Ferguson, *Edwards Aquifer Authority*, *Essentials of Texas Water Resources* 325, 337 (Mary K. Sahs ed., 2009).

²⁴⁶ *Supra.* note 244 at 618.

²⁴⁷ *Supra.* note 242 at 817.

²⁴⁸ *Id.*

flowed “down a ditch several hundred years into a 50-acre lake on the property,”²⁴⁹ some of the water was still used for irrigation.²⁵⁰ The lake had been used for recreation and also as a source of irrigation.²⁵¹ Day purchased the land and sought a permit from the EA-Authority so that he could continue to use the well or drill a replacement well.²⁵²

In 1997, Day applied for a permit authorizing 700 acre-feet, basing his request on the two acre-feet for the total beneficial use of irrigating the 300 acres plus the recreational use of the 50-acre lake.” Three years later, the Edwards Aquifer Authority notified Day that his application would be denied because withdrawals from the well during the historical period were not placed to a beneficial use. Day challenged the decision, and at hearing, the prior owner of the land testified that he had irrigated 150 acres “using an agricultural sprinkler system that drew water from the lake, and that no more than seven acres had been irrigated with water directly from the well.”²⁵³ The Administrative Law Judge concluded that the lake water was surface water and its use could not be included to support Day’s calculation of historical beneficial use.

The EA-Authority gives preference to “existing users,” defined as persons who “withdrew and beneficially used underground water from the aquifer on or before June 1, 1993 – and their successors and principals.”²⁵⁴ A user may apply for an “initial regular permit” (IRP), which authorizes a user’s annual withdrawal of groundwater “based on the beneficial use of water without waste during the period from June 1, 1972, to May 31 1993.”²⁵⁵ The EAA defines “beneficial use” as “the use of the amount of water that is economically necessary for a purpose authorized by law, when reasonable intelligence and reasonable diligence are used in applying

²⁴⁹ *Id.*

²⁵⁰ *Id.*

²⁵¹ *Id.*

²⁵² *Id.*

²⁵³ *Id.* at 821.

²⁵⁴ *Id.* at 818.

²⁵⁵ *Id.*; EAAA § 1.16(a)

the water to that purpose.”²⁵⁶ While the Water Code defines “beneficial use” to include recreational purposes, it states that “any special law governing a specific district shall prevail.”²⁵⁷ Moreover, a user’s total permitted annual withdrawal cannot exceed his maximum beneficial use during any single year of the historical period.”²⁵⁸ The maximum beneficial use for a user with no historical use for an entire year is “the normal beneficial use for the intended purpose.”²⁵⁹ However, the total withdrawals from the aquifer “under all permits must be reduced proportionately as necessary to not exceed the statutory maximum annual withdrawal from the aquifer.”²⁶⁰ An “existing user” who produced groundwater for at least three years during the historical period (June 1, 1972 to May 31, 1993) “is entitled to a permit for at least the average amount of water withdrawn annually.”²⁶¹ In addition, every existing irrigation user is entitled to a permit authorizing a minimum of “two acre-feet a year for each acre of land the user actually irrigated in any on calendar year during the historical period.”²⁶²

Day alleged that the Edwards Aquifer Authority’s denial of a permit to withdraw groundwater amounted to taking of property – his ownership right to groundwater in place – without compensation.²⁶³ Day argued that as the owner of the groundwater in place, he could not be denied the beneficial use of underlying groundwater merely because he did not use it during an historical period and supply is limited.²⁶⁴ The EA-Authority countered Day’s position that

²⁵⁶ EAAA § 1.03(4). See TEX. WATER CODE §§ 11.002(4); 36.001(9)(sharing the definition of “beneficial use” supplied by the Water Code)

²⁵⁷ *Edwards Aquifer Auth.* at 819 (quoting TEX. WATER CODE § 36.052(a)).

²⁵⁸ *Id.* at 819-820.

²⁵⁹ *Id.* at 820 (quoting EAAA § 1.16(e)).

²⁶⁰ *Id.*; See EAA § 1.16(e) (“If the total amount of water determined to have been beneficially used without waste under this subsection exceeds the amount of water available for permitting, the authority shall adjust the amount of water authorized for withdrawal under the permits proportionately to meet the amount available for permitting.”)

²⁶¹ *Id.*

²⁶² TEX. WATER CODE § 1.16(e).

²⁶³ *Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 821 (Tex. 2012).

²⁶⁴ *Id.*, at 843 (Tex. 2012).

there is a property right in groundwater in place, arguing that “the rule of capture deprives a landowner’s interest in groundwater of two attributes essential to the ownership of property: a right of possession (i) from which others are excluded and (ii) which may be enforced.”²⁶⁵

Accordingly, the EA-Authority declared that the rule of capture deprives a landowner from having an interest entitling him to exclude others from taking water below his property and therefore no property right to be taken.

At the time of the decision, it was unsettled whether groundwater was subject to ownership in place. Thus, the court’s first objective was to clarify the concepts of absolute ownership and the rule of capture in order to ascertain the constitutional implications of groundwater regulation.²⁶⁶ The court rejected the EA-Authority’s argument and recognized a property right to groundwater in place. Despite the differences between groundwater and oil and gas, the *Day* court adopted the established principles pertaining to oil to govern groundwater.

The court directly quoted *Eliff v. Texon Drilling Co., et. al.*, 210 S.W.2d 558, 561 (Tex. 1948):

“In our state the landowner is regarded as having absolute title in severalty to the oil and gas in place beneath his land. The only qualification of that rule of ownership is that it must be considered in connection with the law of capture and is subject to police regulations. The oil and gas beneath the soil are considered a part of the realty. Each owner of land owns separately, distinctly and exclusively all the oil and gas under his land and is accorded the usual remedies against trespassers who appropriate the minerals or destroy their market value.”²⁶⁷

After establishing that the ownership of groundwater in place is a constitutionally-protected property right, the court shifted its focus to whether Day’s property right had been

²⁶⁵ *Id.* at 830.

²⁶⁶ As one commenter clearly explained, “If groundwater ownership rights vested only upon capture, then it could safely be assumed that the state owns groundwater and cannot be liable for a regulatory taking on the basis of groundwater regulation. However...ownership of groundwater in place exists separately from the rule of capture, and, therefore, constitutionally protected rights are implicated when the legislature attempts to regulate groundwater usage.” Ashlie Newman, “Edwards Aquifer Authority v. Day and the Future of Groundwater Regulation in Texas,” 31 REV. LITIG. 403, 408 (2012).

²⁶⁷ *Id.* at 831-32 (quoting *Eliff v. Texon Drilling Co., et. al.*, 210 S.W.2d 558, 561 (Tex. 1948)).

taken. The court quickly determined that the EA-Authority's denial of Day's permit application did not constitute a *per se* taking by amounting to either a permanent physical invasion of Day's property or a categorical taking by depriving Day "all economically beneficial use" of his property.²⁶⁸ Accordingly, the court identified the Penn Central takings analysis as the proper means for determining whether Day had suffered a regulatory taking.

A *Penn Central* analysis does not include a set formula, but attempts to balance the regulation's (1) economic impact on the claimant; (2) interference with investment-backed expectations; and (3) the nature of the regulation. Turning to the first factor, the court concluded that the EA-Authority's denial of Day's permit significantly increased the costs associated with growing crops and raising cattle.²⁶⁹ The court found that regulations "certainly appears to have had a significant, negative impact on him, though it may be doubted whether it has denied him *all* economically beneficial use of his property."²⁷⁰

The court proceeded to examine the degree to which the regulations interfered with Day's investment-backed expectations. However, the court's analysis included an implicit consideration of the *reasonableness* of Day's investment-backed expectations. Accordingly, the court recognized that when Day purchased the property in 1994, one year after the EAA Act's passage, he "could have determined from the same investigation he made later [when he applied for his permit] that he could not prove much historical use of groundwater to obtain a permit."²⁷¹ Thus, the court presumed that "Had all this information demonstrated that his investment in the

²⁶⁸ *Edwards Aquifer.*, *supra* note 264 at 839.

²⁶⁹ *Id.* at 840.

²⁷⁰ *Id.*

²⁷¹ *Id.* at 839; The court stated that an insufficient record precluded any conclusive determination of Day's investment-backed expectations. ("While Day should certainly have understood that the Edwards Aquifer could not supply landowners' unlimited demands for water, we cannot say that he should necessarily have expected that his access to groundwater would be severely restricted. We underscore "necessarily" because there is little in the record to illuminate what his expectations were or reasonably should have been.)

property was not justified, one could argue that he had no reasonable expectation with which the [EAA Act] could interfere.”²⁷² Nevertheless, the court did not find these reasons alone demonstrated that EAA Act interfered with Day’s investment-backed expectations. The court acknowledged that even if Day had no reasonable investment-backed expectations, “the government cannot immunize itself from its constitutional duty to provide adequate compensation for property taken through a regulatory scheme merely by discouraging investment.”²⁷³ In any event, as the court explained, the Penn Central analysis comprises a balancing test in which no single factor is dispositive.

Finally, the court examined the nature of the regulation. The court’s analysis began with its recognition that Texas is “empowered to regulate groundwater.”²⁷⁴ As early as 1904, the court in *East* suggested that future groundwater regulation would be permitted.²⁷⁵ A few years after *East*, the legislature passed a constitutional amendment, Article XVI, Section 59, which created the EA-Authority’s power to permit groundwater use.²⁷⁶ According to the court, the amendment was justified because “[g]roundwater provides 60% of the 16.1 million acre-feet of water used in Texas each year and in many areas of the state, and certainly in the Edwards Aquifer, demand exceeds supply. Regulation is essential to its conservation and use.”²⁷⁷

To aid its understanding of the nature of the regulation, the court examined key differences between groundwater and oil and gas and the impact those differences have on regulation. First, the court observed that the state’s regulation over oil and gas is designed “to allow an owner to withdraw the volume beneath his property and sell it.” The degree of

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ *Id.*

²⁷⁵ *Id.* (In *East*, we concluded that there were no correlative rights in groundwater “[i]n the absence of ... legislation”, suggesting that legislation would be permitted.)

²⁷⁶ TEX. CONST. ART. XVI, § 59(a).

²⁷⁷ *Id.* at 839

regulation needed to meet this objection results from several characteristics of oil and gas that do not pertain to groundwater, such as: (1) A reservoir's supply of oil and gas cannot generally be replenished; (2) Oil and gas production is most commonly used solely as a commodity for sale; and (3) Land surface area is an important metric in determining an owner's fair share.²⁷⁸

Next, the court discussed key characteristics of aquifers, observing that: (1) Aquifers are often recharged by rainfall, drainage, or other surface water and available water quantities may increase or decrease; (2) Groundwater's beneficial uses – for drinking, agriculture, industry, and recreation – often do not involve a sale of water; and (3) Groundwater may be used on land where it is pumped or transported for use or sale elsewhere. Ultimately, the court concluded, “regulation that affords an owner a fair share of subsurface water must take into account factors other than surface area.”²⁷⁹

The court shifted its focus to the EA-Authority's usage of “beneficially-used groundwater during a historical period” as the sole criteria to evaluate permit applications. The court explains that Chapter 36 of the Water Code requires groundwater districts to consider the proposed use of the water, the effect on the supply and other permittees, and a district's approved management plan when deciding whether to grant a permit. In contrast, the EA-Authority, as discussed above, requires that permit amounts be determined based solely on the amount of beneficial use during the historical period and the available water supply. Eventually, the court declared, “Neither the Authority nor the State has suggested a reason why the [EAA Act] must be more restrictive in permitting groundwater use than chapter 36, nor does the [EAA Act] suggest any justification. But even if there were one, a landowner cannot be deprived of all

²⁷⁸ *Id.* at 840.

²⁷⁹ *Id.* at 841

beneficial use of the groundwater below his property merely because he did not use it during an historical period and supply is limited.”²⁸⁰

CONCLUSION

Both Texas and Arizona’s unwillingness to police waste exhibit the “Tragedy of the Commons” - that each individual acting logically in his best interest will result in the destruction of the resource. In this context, waste is understood as water that is not put to a beneficial use. For decades, Texas and Arizona’s political leaders allowed overdraft to continue unabated on the belief that abundant surface water supplies were adequate to satisfy the state’s agricultural, mining, and urban interests. However, federal intervention ultimately required each state to reconsider its groundwater laws. In Arizona, the federal government’s support for the CAP project and the Supreme Court’s ruling in *California v. Arizona* provided needed relief by delivering surface waters from the Colorado River which allowed the state’s AMA to prevent overdraft. In Texas, a federal statute, the ESA, required reform. The federal government threatened Texas that its failure to ensure sufficient water levels in the Edwards Aquifer would result in the federal government’s administration of the aquifer.

The most glaring weakness of Arizona’s Groundwater Code has been its failure to pacify the competition for groundwater between the state’s urban and rural interests. The Groundwater Code targeted Arizona’s growing urban areas where overdrafting was most severe and designated them as AMAs. However, Arizona’s rural areas are now experiencing similar problems related to overdraft that previously challenged the state’s more populated areas in 1980. Because these rural areas are not AMAs, groundwater rights are still based on reasonable and beneficial use, and non AMAs receive little support from the state government.

²⁸⁰ *Id.* at 843.

The rule of capture is not equipped for the increased demand for groundwater and advancements in technology since *East*. Yet the courts have consistently applied it to absolve landowners' interference with neighboring wells; the non-liability rule of capture encourages overdraft because any water that is not withdrawn today is vulnerable to capture, at least in part, by rival pumpers. Thus, while an overlying landowner is the absolute owner of any groundwater below, the rule of capture discourages the landowner "to forego current pumping for future pumping."²⁸¹ The resulting competition among groundwater pumpers has led to excessive withdrawals of groundwater and aquifer depletion, and continues to pose a threat.

Texas's courts have provided numerous justifications to avoid modifying the rule of capture. In 1904, the Texas Supreme Court's policy of non-intervention in *East* seemed palatable given the lack of clarity on the relationship between surface and groundwater. Because the court assumed that the return flow from water producers' on-premise uses sufficiently restored aquifer levels, the court understood the railroad's groundwater production to only temporarily inhibit production by a landowner like *East*.²⁸² For this reason, the court limited the plaintiff's remedy to self-help, accomplishable by construction of a well capable of capturing water from the railroad's well. However, the *East* court's justification for the rule of capture - a lack of understanding of groundwater - ceased to support an unmodified rule of capture shortly after the decision because the hydrological connection between surface and underground water became clear.²⁸³ Still, fifty years later in *Corpus Christi v. City of*

²⁸¹ D.H. Negri, The Common Property Aquifer as a Differential Game, 25 WATER RESOURCES RESEARCH.9, 9-15.

²⁸² Corwin W. Johnson, *Texas Groundwater Law: A Survey and Some Proposals*, 22 NAT. RESOURCES. J. 1017, 1017 (1982).

²⁸³ See Joe R. Greenhill & Thomas Gibbs Gee, *Ownership of Ground Water in Texas; the East Case Reconsidered*, 33 TEX. L. REV. 620, 623 (1955) ("the facts concerning virtually all water of any commercial value are now known or are ascertainable"); See Wiel, *Need of Unified Law for Surface And*

Pleasanton, the court took advantage of a loophole to support a narrow definition of waste and maintain the status quo. Although nearly 75% of withdrawn water was lost in transport, the court held that only wasteful *uses* disarmed the rule of capture and determined that transportation is not a use. Then in *Friendswood*, the court conceded that rule of capture is unsuited for groundwater, yet maintained its loyalty to it because “it ha[d] been relied upon by thousands of farmers, industries, and municipalities in purchasing and developing vast tracts of land overlying aquifers of underground water.”²⁸⁴ More recently, the courts coached their inaction as deference. In *Sipriano*, the court explained that it lacked authority to modify the rule of capture because the Conservation Amendment made groundwater regulation a Legislative affair.²⁸⁵

Over time, the failure to modify the rule of capture destabilized vested surface water rights. In *Comanche Springs* in 1951, a Texas court rejected the plaintiffs’ claim that they were entitled to access to the normal flow of Comanche Springs, thus proliferating the lack of coordination between rights to surface and underground water. At the same time, Texas’s continued application of the absolute ownership rule to groundwater flies in the face off the Legislature’s duties under the Conservation Amendment to conserve the state’s natural resources. In both states, regulation has been reasonably effective, especially in Arizona. However, the demand for water will continue to increase in both states, considering their growing populations. Arizona and Texas will be further challenged by the uncertain, but inevitable effects of climate change.

Underground Water, 2 S. CAL. L. REV. 358, 362 (1929) (stating that the connection between surface streams and groundwater is never absent).

²⁸⁴ *Friendswood Dev. Co. v. Smith-S.W. Industries, Inc.*, 576 S.W.2d at 29.

²⁸⁵ *Sipriano v. Great Spring Waters of Am., Inc.*, 1 S.W.3d at 80.

The historical development of the treatment of groundwater in Arizona and Texas demonstrate a number of needs. First, as exhibited by Texas's struggle to decide who owns groundwater in place and Arizona's creation of fictional "subflow," it is important to create a system of clearly defined groundwater rights. Second, although potentially economically prohibitive, statewide monitoring of aquifers could allow states to more accurately assess the quantity of available groundwater both statewide and locally. Third, and perhaps most obvious, Arizona and Texas should attempt to promulgate rules that reflect sound, hydrological principles. If Texas were to deem groundwater mining as inevitable, local monitoring could at least facilitate an aquifer's slower and/or more predictable depletion. Last, as an alternative to *better* state regulation of groundwater, it is at least hypothetically possible that the federal government would use its broad commerce clause power to implement its own groundwater regulations.²⁸⁶

²⁸⁶ See *Sporhase v. Nebraska, ex rel. Douglas*, 548 U.S. 941, 953 (1982) ("The agricultural markets supplied by irrigated farms are worldwide. They provide the archtypical example of commerce among the several States for which the Framers of our Constitution intended to authorize federal regulation.").