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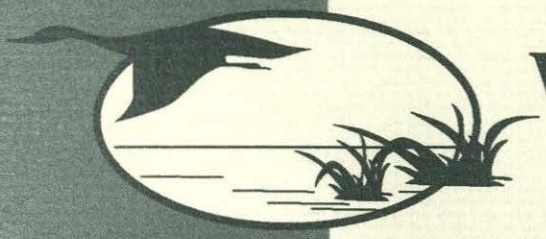

UNIVERSITY OF DENVER
WATER LAW REVIEW

ARTICLES

COLORADO WATER COURT REPORTS

BOOK REVIEW

BOOK NOTES

Volume 1/Issue 1/Fall 1997

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EDITORIAL POLICY. The *Review* welcomes the submission of articles of timely interest to the water law community. Articles should discuss topical issues in water law and related areas, such as environmental and natural resource law, land use, and water quality. They should provide an original, analytical and in-depth treatment of the issue, rather than a summary of previous research efforts. In addition to articles, the *Review* also invites authors to submit shorter works, such as book reviews, commentaries, recent developments and bibliographies.

STYLE. Articles should be well organized, concisely written, and presented in an articulate and scholarly manner. More descriptive presentation should be limited to background matter, and use of direct quotations should be kept to a minimum.

FORMAT. Manuscripts should be typed in MS Word format, double-spaced, and printed on 8-1/2 x 11 paper. The text should be broken into appropriate headings and subheadings. The text should conform to the *Chicago Manual of Style* (14th ed. 1993). Citations to authority should be contained in footnotes. Footnotes may also include elaboration of points raised in the text or references to research sources pertaining to points peripheral to those discussed in the text. Footnotes must conform with *The Bluebook: A Uniform System of Citation* (16th ed. 1996), published by the Harvard Law Review Association, and should be current as of the date of submission.

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EDITOR'S NOTE

The Editors and Staff of the newly formed *Water Law Review* proudly present the inaugural issue. The primary goal in creating this biannual publication is to provide a unique, high-quality forum for sharing ideas, information, and legal and policy analyses on issues in water law. It is our intent to make the *Review* an invaluable resource for the practitioner, the scholar, and the policy-maker.

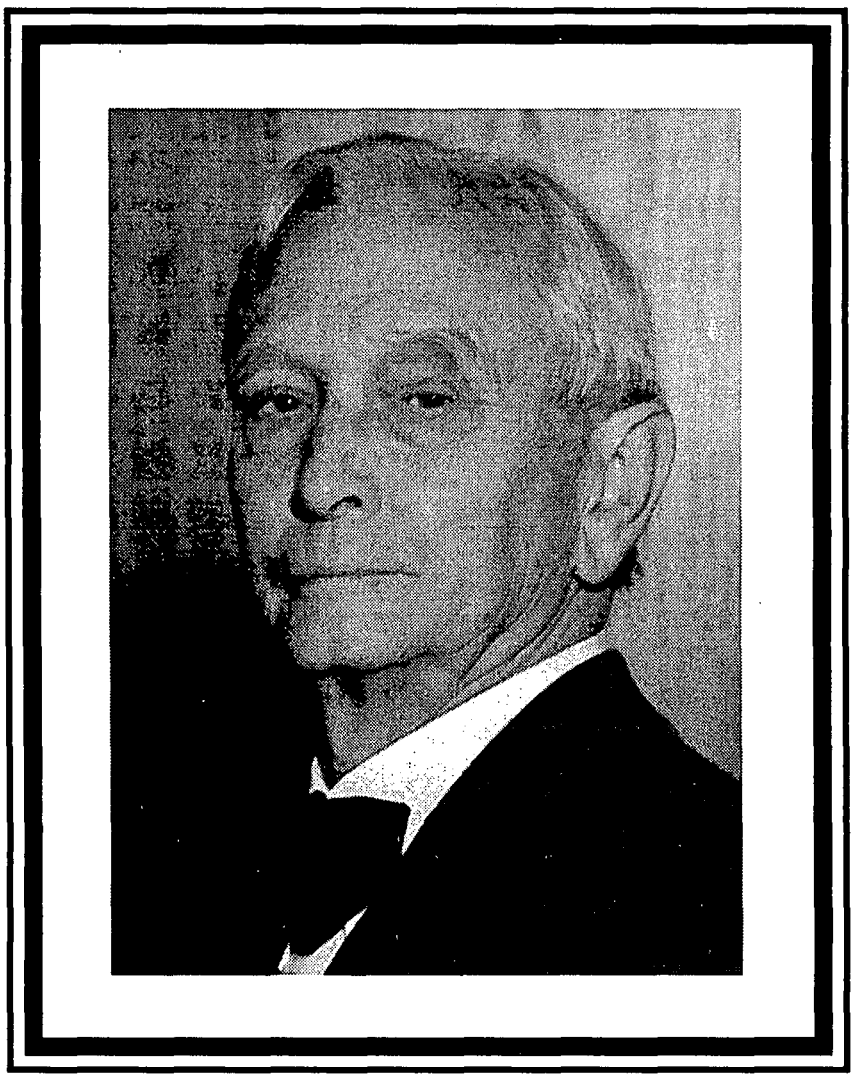
The *Review's* primary emphasis will be on issues in water law, but we understand that nothing exists in isolation, either in law or nature. Therefore, it is the express policy of the *Review* to solicit and publish scholarly works that discuss water law as it affects and is affected by related areas, legal or otherwise. To that end, we are pleased to present articles by nationally recognized experts, practitioners, officials, scholars, and others involved in the fields of water law and planning.

Colorado Supreme Court Justice Gregory Hobbs, Jr. authors our lead article in which he chronicles critical events in Colorado and western water law development. From the administrative perspective, Barbara Green and Jon Alby delineate the ways in which the integration of watershed protection and land use planning can provide tools and guidance for local planners and communities to improve their water quality. From private practice, Carmen Sower-Hall and Holly Holder author an article analyzing the complex relationship between water quality and water rights in the context of augmentation plans and exchanges prepared under Colorado statutory guidelines. Finally, Karen Crass examines the far-reaching potential for unexercised tribal water rights in the *Winters* doctrine

The *Review* will continue the tradition of its predecessor, the University of Denver *Water Court Reporter,* and provide a regular section reporting on significant developments in the Colorado Water Court Divisions. However, it is not our policy to restrict the *Review's* coverage to any one jurisdiction. We live in a highly complex global community, and the more ideas and information that can be shared, the more successful we will be in managing today's problems and tomorrow's challenges. Therefore, we invite our readers to submit articles that address the full range of issues in water law and water management that may emanate from any number of geographical locations.

As a final note, we thank our Advisory Board for their inspiration and guidance. We also thank the Environmental and Natural Resource Law faculty of the University of Denver College of Law. Without their dedication and enthusiasm, our goals for this journal would never have been realized. Finally, we thank the Dean and administration at the College of Law for their support of our efforts in creating this journal.

Vicki L. Spencer
Editor-in-Chief



L. Ward Bannister
1877-1958

IN TRIBUTE

This first issue of the *Water Law Review* is respectfully dedicated to Lucius Ward Bannister, one of the West's foremost authorities on water law. Born in Des Moines, Iowa in 1877, Mr. Bannister attended Drake University, Iowa University, Stanford and Harvard before coming to the University of Denver.

Mr. Bannister taught at the University of Denver College of Law from 1899 to 1904. Following a brief leave of absence, he returned to the University in 1905. He was appointed full professor in 1922 and continued to teach until 1951. While teaching at the University of Denver, Mr. Bannister was active in Republican politics and national government. In 1929, he acted as legal adviser to the Oil Conservation Conference under an appointment by the Secretary of Interior and was a member of the Hoover Commission from 1947 to 1949.

In addition to his national activities, Mr. Bannister was renown for his contributions to state and local government. In 1907 and 1908, he served as a member of the Colorado Board of Pardons, and he was counsel for the state's first Industrial Commission. Most notably, Mr. Bannister acted as special counsel for Colorado in a number of water compact matters.

While engaged as a special lecturer at Harvard and Columbia Universities, Mr. Bannister issued an outline of a course on water rights. It is a systematic and comprehensive outline, covering different systems of water rights, appropriation of water for beneficial use, priorities, physical means of use, transfer and extinction of water rights, agencies of acquisition, and distribution. This publication was utilized extensively in teaching water law to students at the University of Denver and elsewhere.

By integrating his intellectual pursuits with his prominent position in the public arena, Mr. Bannister helped lay the foundation for the practice of water law today.

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WATER LAW REVIEW

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COLORADO WATER LAW: AN HISTORICAL OVERVIEW

JUSTICE GREGORY J. HOBBS, JR.[‡]

TWO RIVERS
Thomas Hornsby Ferril

Two rivers that were here before there was
A city here still come together: one
Is a mountain river flowing into the prairie;
One is a prairie river flowing toward
The mountains but feeling them and turning back
The way some of the people who came here did.

Most of the time these people hardly seemed
To realize they wanted to be remembered,
Because the mountains told them not to die.

I wasn't here, yet I remember them,
That first night long ago, those wagon people
Who pushed aside enough of the cottonwoods
To build our city where the blueness rested.

[‡] After receiving his J.D. from the University of California Berkeley (Boalt Hall), Justice Hobbs was law clerk to Judge William E. Doyle of the Tenth U.S. Circuit Court of Appeals. He then served as an enforcement attorney with the U.S. Environmental Protection Agency, and then as the First Assistant Attorney General for the State of Colorado, Natural Resources Section. Upon entering the private sector, Justice Hobbs developed a practice that emphasized water, the environment, land use, and transportation. Formerly a senior partner with the Denver law firms of Davis, Graham & Stubbs, LLP, and then of Hobbs, Trout & Raley, PC, he was appointed Justice of the Colorado Supreme Court in May of 1996.

They were with me, they told me afterward,
When I stood on a splintered wooden viaduct
Before it changed to steel and I to man.
They told me while I stared down at the water:
'If you will stay we will not go away.'[1]

INTRODUCTION

Rivers, plains, and mountains make us Coloradans. Residing on one of two sides of this Continent's backbone, some of us look to the West to the Great Divide, others to the East. When our hearts follow our eyes, when we think about this magnificent land and our fellow Coloradans on the other side, we truly gain the power of this rivered place. Thomas Hornsby Ferril called on us—his fellow Coloradans—to remember and to live our origins: strength of mountain stream, hope of prairie stream.

Beneficial use and preservation are two primary public policies which guide western natural resource law; they are the two chambers of our western heart, the two lobes of our brain. Colorado water law establishes the right of water appropriation to serve public and private needs. New uses and changes in existing water rights continue to exist and evolve within the framework of the water law. The preservation interests are addressed primarily by state and federal land use law and environmental regulatory law, such as is evidenced by the acquisition of open space and parks by public entities, as well as federal land reservations for national parks, monuments, wilderness areas, and wildlife preserves.

Western prior appropriation water law is a property rights-based allocation and administration system, which promotes multiple use of a finite resource. The fundamental characteristics of this system guarantee security, assure reliability, and cultivate flexibility. Security resides in the system's ability to identify and obtain protection for the right of use. Reliability springs from the system's assurance that the right of use will continue to be recognized and enforced over time. Flexibility emanates from the fact that the right of use can be transferred to another, subject to the requirement that other appropriators not be injured by the change.

Dean Frank Trelease described an "ideal water law" as being a property rights system of uses, which rewards initiative, promotes reliable planning and decision making, and subjects those property rights to regulation in the public interest:

> An ideal water law should give a water right those characteristics that will encourage and enable people to make the best decisions as to wa-

1. Thomas Hornsby Ferril, *Two Rivers, in* THOMAS HORNSBY FERRIL AND THE AMERICAN WEST 122 (Robert C. Baron et al. eds., 1996).

> ter use in their own interests and hence ultimately in the public interest. Private uses of water should be based upon property rights not dissimilar to the property rights in more stable and tangible assets, and like other property rights they should be subject to regulation in the public interest.[2]

Colorado water law illustrates the public interest at work through the interplay of two forces. On the one hand, individual and public entity initiative secure water supplies for beneficial use in a system of property rights creation. On the other hand is the enforcement of those rights, subject to local, state, and federal regulation aimed at meeting societal choices made by legislative means.

This article focuses on major historical and legal themes that emerge from Colorado's water experience. It is accompanied by an appendix intended to highlight the major historic, statutory, and case law events that give structure to Colorado water law.

CUSTOM AND NECESSITY IN THE COLORADO TERRITORY

President Thomas Jefferson wrote to Meriwether Lewis that "[t]he object of your mission is single, the direct water communication from sea to sea formed by the bed of the Missouri & perhaps the Oregon."[3] His use of the term *perhaps* suggests that Jefferson, the scientist, was at work. But Jefferson's mistaken belief in a mighty waterway of commerce crossing an entire continent stemmed directly from his grounding in the law of running water, and from his assumption that the geography of well watered climes also existed in the Louisiana Territory.

The Justinian Code of the fifth century enunciated what we recognize today as the riparian doctrine: running water is the property of the public for use by traders and fisherman, whereas the banks of the river are the property of the adjoining landowner.[4] The law of running water was inclusive of a riparian landowner's right to make a *de minimus* use, or reasonable use, for milling and domestic purposes. Of course, this use was subject to the water's return to the stream without substantial alteration to either its quality or quantity. This law of running water was carried into the English common law.[5] But as the waters ran out in the vast mountainholds of the new American West, Lewis and Clark would ultimately ditch their boats and trek by foot and horse. So, too, would the western territories ultimately ditch ri-

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2. Frank J. Trelease, *Policies for Water Law: Property Rights, Economic Forces, and Public Regulation*, 5 NAT. RESOURCES J. 1, 8-9 (1965).

3. LETTERS OF THE LEWIS AND CLARK EXPEDITION, WITH RELATED DOCUMENTS 1783-1854, 136-38 (Donald Jackson ed., 2d ed. 1978) *reprinted in* STEPHEN E. AMBROSE, UNDAUNTED COURAGE: MERIWETHER LEWIS, THOMAS JEFFERSON AND THE OPENING OF THE AMERICAN WEST 116 (Simon and Schuster 1996).

4. *See* JAMES WILLIAMS, THE INSTITUTES OF JUSTINIAN ILLUSTRATED BY ENGLISH LAW 84 (2d ed. 1893).

5. *Id.*

parian water law as inapplicable to their clime and use.

Of the public lands secured to the United States by the Louisiana Purchase of 1803 and the 1848 Treaty of Guadeloupe Hidalgo, Colorado was carved out of the then-existing Kansas and Utah Territories when Kansas became a state in 1861. Thirty-seven percent of Colorado still resides in federal ownership.[6] The settlers of the new frontier were invited onto the public domain through policies enacted by the federal government aimed at securing the occupation of the continent by citizens of the United States. One of these settlers, Benjamin Eaton, was to have a profound role in early Colorado water use.

After gold was discovered at the confluence of Cherry Creek and the South Platte River, Eaton traveled from Iowa to the very western part of the Kansas Territory, journeying with an 1859ers hope of locating vast riches. Born into an Ohio farming family, he viewed canals as a means by which to float boats and barges towards the mighty rivers rather than a means by which to water crops. First attempting to make a life in the Front Range mining camps, Eaton eventually struck out for the San Juans in the dead of winter by way of the Sangre de Christos. The promise of quick riches was soon played out. However, in the course of his introduction to the extremes of mountain weather and living, Eaton came to learn how water could be re-routed from a more abundant stream for use at water deficient mining locations.

Eaton ventured away from the Colorado mining camps to work the irrigated farm land of the Maxwell Land Grant outside Cimarron in northern New Mexico. Tapping into a rich Southwestern water heritage, he soon added to his growing appreciation for Western water usage. It was in New Mexico that he was introduced to *acequias*, the community ditches that had utilized gravity to deliver water to the fields of northern New Mexico since the founding of Santa Fe in 1609.[7] By 1700, an estimated sixty *acequias* were operating in New Mexico, with an additional one hundred in the 1700s, and then three hundred more in the 1800s.[8] Because the official seats of government were located far away in Spain and Mexico, expediency dictated that local custom become the law in a pioneering New Mexico. In order to serve local conditions, many equitable principles of community cooperation were applied when distributing water.[9] Of course, these early Spanish settlers did not invent Southwestern irrigation. Native peoples of the Americas had practiced irrigation long before the Spanish entrance into the New World. Indeed, a Spanish explorer entering New Mexico in 1583 reported finding "many irrigated corn fields with canals and dams" built by Pueblo Indians.[10]

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6. *See* People v. Schafer, 946 P.2d 938 (Colo. 1997).

7. JANE E. NORRIS & LEE G. NORRIS, WRITTEN IN WATER: THE LIFE OF BENJAMIN HARRISON EATON 32, 220-22 (1990).

8. NEW MEXICO STATE ENGINEER'S OFFICE, 1997 ACEQUIAS 4 (1997).

9. IRA G. CLARK, WATER IN NEW MEXICO: A HISTORY OF ITS MANAGEMENT AND USE 15 (1987).

10. NEW MEXICO STATE ENGINEERS OFFICE, *supra* note 8, at 3.

Eventually, Benjamin Eaton left the New Mexico territory and began to draw on his experiences with the New Mexican *acequias.* In 1864, he dug a direct flow ditch from the Poudre river to his farm. He helped other settlers in Greeley in the construction of the Union Colony No. 2 Canal in the early 1870s. It was Eaton who oversaw the construction of the incredibly long and wide Larimer and Weld Canal in Northern Colorado. He then assisted in laying out the High Line Canal that would run through the Denver basin. As a member of the Territorial and State Legislatures, Eaton worked to shape water legislation, including the Adjudication Acts of 1879[11] and 1881.[12] He served as Governor from 1885-87, and later founded the town of Eaton, to which he brought a sugar beet factory.[13]

Eaton was just one of many Colorado pioneers. Throughout the state, farms and towns took shape interdependently. The Homestead Act of 1862[14] was instrumental in promoting settlement on the public domain, and as the mining camps disappeared, communities sprang up as agricultural activity and productivity increased. Soon the valleys of the Arkansas, the Gunnison, the San Luis, and the Grand, blossomed. The homestead entries in the State of Colorado totaled 107,618, and covered 22,146,400 acres of land. Only Montana and North Dakota experienced more entries.[15]

Settlers of the West favored independent action and feared corporate monopolies. The Jeffersonian ideal of strong families civilizing the continent through farming[16] animated the Homestead Law as well as the Western water doctrine of beneficial use, whose principles spurned waste and speculation. Water served the public interest as that interest was then perceived in Colorado. In 1861, the Territorial Legislature provided that water could be taken from the streams to lands not adjoining the waterways.[17] Thus occurred, at the earliest opportunity, Colorado's departure from the common law riparian doctrine and its reasonable use corollary.[18] In 1872, the Colorado Territorial Supreme Court recognized rights of way by reason of the "natural

11. 1879 Colo. Sess. Laws 99-100.

12. 1881 Colo. Sess. Laws 142.

13. NORRIS & NORRIS, *supra* note 7, at 94, 104, 122, 139, 140, 146, 214.

14. Homestead Act of 1862, ch. 75, §1, 12 Stat. 392 (1862) (repealed 1976).

15. CARL UBBELOHDE ET AL., A COLORADO HISTORY 259 (1972).

16. In the words of Jefferson, "[t]hose who labor in the earth are the chosen people of God." (THOMAS JEFFERSON, JEFFERSON HIMSELF: THE PERSONAL NARRATIVE OF A MANY-SIDED AMERICAN 34 (Bernard Mayo ed., 1970)).

17. Colo. Territorial Laws 67-68 (1861).

18. *See* Tyler v. Wilkinson, 24 F. Cas. 472, 474 (C.C.D.R.I. 1827) (No. 14,312); Pyle v. Gilbert, 265 S.E. 2d 584 (Ga. 1980). This "pure" prior appropriation doctrine contrasts, for example, with California's riparian/prior appropriation/public trust hybrid which California chose by reason of its own custom and law; *see* National Audubon Soc'y v. Superior Court, 658 P.2d 709 (Cal. 1983); Lux v. Haggin, 10 P. 674 (Cal. 1886).

law" of custom and necessity. No one could now dispute that water could be carried to the place of use through intervening lands owned by others.[19]

CONGRESSIONAL DEFERENCE AND THE COLORADO CONSTITUTION

Through the 1866 Mining Act,[20] the 1877 Desert Lands Act,[21] and subsequent legislation, Congress provided that states and territories could establish their own water laws and create property rights to unappropriated water on and off the federal lands:

> What we hold is that following the act of 1877 if not before, 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.[22]

The oft-reiterated congressional choice not to adopt a federal water law system reflected the nation's pro-settlement agenda and its preference for federalism. Just like the appropriation doctrine itself, congressional deference to state water law choices arose out of the westward-leaning frontier experience.

The Colorado Constitution of 1876 declared that unappropriated water is "the property of the public . . . dedicated to the use of the people of the state, subject to appropriation,"[23] that the right to appropriate the unappropriated waters of the natural streams of the state for beneficial use in order of priority shall never be denied,[24] and that rights of way for the conveyance of water by ditches, canals, and flumes can be secured for agricultural, domestic, mining, and manufacturing purposes from the stream across intervening public, private, or corporate lands by payment of just compensation.[25]

Riding on the notoriety of his audacious Colorado River expeditions of 1869 and 1871,[26] John Wesley Powell informed Congress of the

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19. Yunker v. Nichols, 1 Colo. 551, 570 (1872).

20. Mining Act of 1866, ch. 262, §9, 14 Stat. 253 (1866) (current version at 43 U.S.C. §§661-66 (1994)).

21. Desert Lands Act, ch. 107, 19 Stat. 377 (1877) (current version at 43 U.S.C. §§641-48 (1994)).

22. California Oregon Power Co. v. Beaver Portland Cement Co., 295 U.S. 142, 163-64 (1935); *see also* California v. United States, 438 U.S. 645, 662 (1978)("[E]xcept where the reserved rights or navigation servitude of the United States are invoked, the State has total authority over its internal waters.").

23. COLO. CONST. art. XVI, § 5.

24. COLO. CONST. art. XVI, § 6.

25. COLO. CONST. art. XVI, § 7.

26. *See* DAVID LAVENDER, RIVER RUNNERS OF THE GRAND CANYON 12-21 (1985).

need for an irrigation survey to locate reservoir sites, and the need for recognition of the "natural law" of appropriation and use of water arising by custom and necessity in the arid lands west of the hundredth meridian.[27] Powell wrote that "monopoly of land need not be feared. The question for legislators to solve is to devise some practical means by which water rights may be distributed among individual farmers and water monopolies prevented."[28] In Colorado, neighboring farmers also recognized this critical fact and began to form mutual ditch companies for water delivery.[29] A share in a mutual ditch company represents the ownership *pro rata* of the water rights and the waterworks of that company.[30] In contrast, carrier ditches were corporate entities formed to construct and operate waterworks for profit. Under the state constitution, they were made the subject of county commission rate regulation.[31]

Colorado water law often exhibits its anti-speculation, pro-individual public policy choice. Within the context of state water law, governmental regulation is employed for the primary purpose of identifying and administering rights which water users enjoy by virtue of appropriation for beneficial use under Colorado's Constitution and statutes. Colorado Supreme Court case law and the statutes of the Colorado General Assembly are the primary sources which define and describe this state's water law. Of course, United States' public land law, natural resource law, and environmental law have also had a profound effect on water development and use in Colorado.

ENDURING AND EVOLVING PRINCIPLES OF BENEFICIAL USE

A water right is a property right that arises solely by the act of placing water, theretofore unappropriated, to the appropriator's beneficial purpose. Its place of diversion and use may occur in different watersheds.[32] Successful application to a beneficial use is required, regardless of the method of capture or conveyance.[33] The essential element and value of a water right is its priority for beneficial use to the exclusion of others not then in priority.[34] Beneficial use, the concept of fructifying the land and its product through human labor, is the means by which a water use ripens into a vested water right. Over an

27. JOHN WESLEY POWELL, LANDS OF THE ARID REGION OF THE UNITED STATES 12-14, 41-43 (Harvard Press 1983) (1879).

28. *Id.* at 41.

29. *See* CARL ABBOTT ET AL., COLORADO, A HISTORY OF THE CENTENNIAL STATE 166 (3d ed. 1994).

30. *See* Jacobucci v. District Court, 541 P.2d 667, 672 (Colo. 1975).

31. *See* Bennett Bear Creek Farm Water & Sanitation Dist. v. City & County of Denver, 928 P.2d 1254, 1264 (Colo. 1996).

32. Coffin v. Left Hand Ditch Co., 6 Colo. 443, 447, 449 (1882).

33. *See* Thomas v. Guiraud, 6 Colo. 530, 532-33 (1883).

34. *See* Navajo Dev. Co. v. Sanderson, 655 P.2d 1374, 1378-80 (Colo. 1982).

extended period of time, a pattern of historic diversions and use under the decreed right at its place of use will mature and become the measure of the water right for purposes of change. The right is typically quantified not in a flow measurement of cubic feet per second of diversion, but rather in acre-feet of water consumed.[35] Beneficial use is not a defined term in the Colorado Constitution, but the statutory definition of "beneficial use" is the "use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made."[36]

An efficient means of diversion suitable to the use must be effectuated. For example, a municipality diverting a domestic water supply cannot utilize a large, open and leaky structure for conveyance to a location remote from the source of supply.[37] Indeed, an irrigator utilizing an inefficient surface diversion may be required to employ wells to effectuate the diversion if a junior appropriator who might benefit undertakes to pay the expenses involved.[38]

Following application to beneficial use, unconsumed water in the form of return flows must be made available to fill subsequent appropriations.[39] The owner of a water right has no right as against a junior appropriation to waste water or to divert more than can be used beneficially. Nor may that owner extend the time or quantity of diversion and use above that for which the appropriation was made.[40] Imported or developed water, such as trans-mountain or non-tributary water, may be consumed to extinction for beneficial purposes.[41] Reservoirs may be constructed in the natural bed of a stream, provided that their operation does not injure senior water rights.[42]

Discharge of pollution by a senior appropriator which impairs junior beneficial uses, such as mining waste, cannot be justified as a beneficial use of water under the senior appropriation.[43] Extended non-use or intentional acts may result in an abandonment of either the whole water right, or a part thereof.[44]

Colorado case law and statutes have emerged which recognize myr-

35. *See* Williams v. Midway Ranches Property Owners Ass'n, 938 P.2d 515, 521 (Colo. 1997).

36. COLO. REV. STAT. § 37-92-103(4) (1997).

37. *See* Montrose Canal Co. v. Loutsenhizer Ditch Co., 48 P. 532, 534 (Colo. 1896).

38. *See* Alamosa La Jara Water Users Protection Ass'n v. Gould, 674 P.2d 914, 935 (Colo. 1983).

39. *See* Comstock v. Ramsay, 133 P. 1107, 1110-11 (Colo. 1913).

40. *See* Weibert v. Rothe Bros., Inc., 618 P.2d 1367, 1371 (Colo. 1980).

41. *See* City & County of Denver v. Fulton Irrigating Ditch Co., 506 P.2d 144, 147 (Colo. 1972).

42. *See* Larimer County Reservoir Co. v. People *ex rel.* Luthe, 9 P. 794, 796 (Colo. 1886).

43. *See* Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co., 48 P.2d 828, 832-33 (Colo. Ct. App. 1897).

44. *See* City & County of Denver v. Middle Park Water Conservancy Dist., 925 P.2d 283, 286 (Colo. 1996); Master's Inv. Co. v. Irrigationists Ass'n, 702 P.2d 268, 271-72 (Colo. 1985).

iad purposes. These include traditional agricultural, stock watering, domestic, municipal, commercial, and industrial uses, power generation, and flood control uses, as well as new and ever-evolving uses such as minimum stream flow appropriations by the Colorado Water Conservation Board, dust suppression, mined land reclamation, boat chutes, fish ladders, nature centers, fish and wildlife culture, recreation, residential environment, release from storage for boating and fishing flows, and augmentation of depletions in order to divert water out-of-priority for the purpose of making a beneficial use which otherwise would be curtailed.[45]

Only the State Water Conservation Board may obtain an appropriation without a means for capturing, possessing and controlling water.[46] This exception was made for the purpose of preserving the natural environment to a reasonable degree.[47] The Board may appropriate water for minimum flow and lake levels in priority, and it may also buy or accept the donation of other rights for change of use to instream flow.[48] The Water Conservation Board holds instream flow rights on approximately 8,000 miles of Colorado streams.[49]

ADJUDICATION OF RIGHTS FOR ADMINISTRATION OF PRIORITIES

So as to assure that rights may be administered in relation to each other under varying conditions of available supply, a priority system of water rights for beneficial use requires a mechanism for determining the source of supply, type of uses, date and amount of appropriation, location and identity of the diversion structure, and place of use.

Soon after statehood, Colorado undertook the identification of existing rights and claimed rights through a litigation process. The Adjudication Acts of 1879[50] and 1881[51] provided: (1) for the identification

45. *See* Board of County Comm'rs v. Upper Gunnison River Water Conservancy Dist., 838 P.2d 840, 849-50 (Colo. 1992) (providing reservoir release for fish, wildlife, boating, and recreation); City of Thornton v. City of Fort Collins, 830 P.2d 915, 919, 932 (Colo. 1992) (utilizing boat chute, fish ladder, nature center); Zigan Sand & Gravel, Inc. v. Cache La Poudre Water Users Ass'n, 758 P.2d 175, 182 (Colo. 1988) (providing for residential environment); Three Bells Ranch Associates v. Cache La Poudre Water Users Ass'n, 758 P.2d 164, 173 (Colo. 1988) (utilizing mined land reclamation); May v. United States, 756 P.2d 362, 371 (Colo. 1988) (providing for reservoir recreation, fishery); State v. Southwestern Colo. Water Conservation Dist., 671 P.2d 1294, 1322-23 (Colo. 1983) (recognizing dust suppression); Cache La Poudre Water Users Ass'n v. Glacier View Meadows, 550 P.2d 288, 295 (Colo. 1976) (recognizing augmentation).

46. *See* COLO. REV. STAT. § 37-92-103(3), 37-92-305(9) (1997).

47. *See* Board of County Comm'rs v. United States, 891 P.2d 952, 972 (Colo. 1995).

48. *See* COLO. REV. STAT. § 37-92-102(3) (1997).

49. *See* COLORADO WATER CONSERVATION BOARD, INSTREAM FLOW/NATURAL LAKE LEVEL PROGRAM UPDATE OF 1996 ACTIVITIES 1 (1997).

50. 1879 Colo. Sess. Laws 99-100.

51. 1881 Colo. Sess. Laws 142.

of irrigation rights by priority and quantity through judicial decree proceedings, and (2) for the administration of these court judgments to occur under the watch of state water officials. This intermixed governance of water rights by the state legislative, executive, and judicial branches continues to this day under the provisions of the State Constitution and statutes. Of course, the act of an appropriator placing water to beneficial use alone can bring into existence a Colorado water right.[52]

Government surveys of sections and townships had not yet been completed when settlers made their agricultural claims under the 1879 and 1881 Adjudication Acts. They estimated their present and future need for water. The result was that considerably more water was allotted in some instances than actually utilized, and priorities were recognized for more than the flow of the stream. Because claims not yet perfected do not enjoy the full status of being water rights, courts began to distinguish between "conditional" rights and those water rights arising by application of water to beneficial use.[53]

Failure to timely adjudicate a water right results in its postponement to those rights which have been adjudicated. Priorities are now set according to the year in which the application for a decree is filed and then ranked in order of the date of appropriation.[54] The 1969 Water Right Determination and Administration Act[55] created a system of seven water divisions with water judges and division engineers assigned to adjudicating and administering decreed rights to the natural streams and all surface and groundwater tributary thereto.

A conditional water right, pursued diligently to completion, preserves a priority which relates back to the first step initiating the appropriation, assuming the use is perfected.[56] An absolute decree: (1) confirms that amount of depletion from the stream which can be taken in priority as a property right, and (2) entitles the subsequent operation of the right in the amount of its decreed quantity, so long as the water is applied beneficially.[57] Water officials enforce decrees of the courts, not unadjudicated claims.[58]

52. *See* Platte Water Co. v. Northern Colo. Irrigation Co., 21 P. 711, 713 (Colo. 1889).

53. *See* Dallas Creek Water Co. v. Huey, 933 P.2d 27, 34-35 (Colo. 1997).

54. *See* United States v. Bell, 724 P.2d 631, 641-42 (Colo. 1986).

55. COLO. REV. STAT. § 37-92-101 to -602 (1997).

56. City & County of Denver v. Northern Colo. Water Conservancy Dist., 276 P.2d 992, 1001 (Colo. 1954); *see also Dallas Creek Water Co.*, 933 P.2d at 35.

57. *Dallas Creek Water Co.*, 933 P.2d at 35.

58. *See* Fort Morgan Reservoir & Irrigation Co. v. McCune, 206 P. 393, 394 (Colo. 1922).

CHANGES OF WATER RIGHTS

Not until 1903 did the Legislature provide for the adjudication of domestic and all uses other then irrigation.[59] Because of its relatively small consumptive burden and its obvious necessity for sustenance of farmers, miners, laborers, and residents of nascent towns, the use of domestic water was considered incidental and non-injurious to agricultural use.[60] Also, the Colorado Constitution might have appeared to provide that domestic use could supersede all other uses, regardless of appropriation date: "[W]hen the waters of any natural stream are not sufficient for the service of all of those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose."[61]

The rise of cities claiming the domestic use preference to supersede other water rights resulted in two important legal developments: (1) water rights can be sold and changed from one use and location to another, and (2) senior vested water rights cannot be taken or superseded without payment of just compensation. In 1891, the Colorado Supreme Court determined that agricultural water rights could be sold to a city provided that the water rights of others are not injuriously affected by the change. The court reasoned that running water in its natural course is "the property of the public."[62] However, a "right . . . to its use . . . will be regarded and protected as property . . . ."[63] "The exclusive right to divert and use the water . . . may be transferred and conveyed like other property."[64] Invoking the Fourteenth Amendment of the United States Constitution, and the takings[65] and due process[66] clauses of the state constitution, the court held that a city could not rely upon the domestic water preference clause of the Colorado Constitution to supersede the priority of a senior appropriation unless the city paid just compensation for the senior right and proceeded in accordance with authorizing eminent domain legislation.[67]

The Colorado Supreme Court also held that changes of water rights require notification and the opportunity to be heard so that those who might be adversely affected may be protected.[68] A water rights transfer is limited in time and quantity to the amount of water

59. 1903 Colo. Sess. Laws 298.
60. Armstrong v. Larimer County Ditch Co., 27 P. 235, 238 (Colo. Ct. App. 1891).
61. COLO. CONST. art. XVI, § 7.
62. Strickler v. City of Colorado Springs, 26 P. 313, 316 (Colo. 1891).
63. *Id.* at 316 (quoting Kid v. Laird, 15 Cal. 161 (1860)).
64. *Id.* (quoting JOHN M. GOULD, LAW OF WATERS, § 234, (3d ed 1900)).
65. COLO. CONST. art. II, § 15.
66. COLO. CONST. art. II, § 25.
67. *Strickler*, 26 P. at 317.
68. *See* New Cache La Poudre Irrigating Co. v. Arthur Irrigation Co., 87 P. 799, 800 (Colo. 1906).

historically withdrawn and consumed over time in the course of applying water to beneficial use under the tributary appropriation without diminishment of return flows.[69]

PROGRESSIVE CONSERVATION

The progressive conservation movement of the late nineteenth and early twentieth century had its most dramatic test of conflict and durability in Colorado. The principal subject was water. Again, natural law and gravity played strongly into law, policy, and politics. President Grover Cleveland, followed by President Theodore Roosevelt, withdrew millions of acres of forest land from settlement under the Homestead Act.[70] Senator Henry Teller of Colorado literally screamed for the federal lands in Colorado to be transferred to state and private ownership. John Muir of California argued just as passionately for preservation and non-use of the public lands. Gifford Pinchot, Roosevelt's progressive forester, argued eloquently for the scientific management of timber so as to preserve and enhance water supplies. Because the forested watersheds were the site of numerous ditches, dams, reservoirs, and settled water rights utilized for the capture, possession and control of water for a beneficial use of federal property by both farmers and municipalities, farmers and municipalities in Colorado, dependent for their water on continued access to the forests, supported Roosevelt and Pinchot:

> The attitude of Coloradans toward Roosevelt and Pinchot clearly illustrated the divergence of opinion that existed in the state over the conservation issue. For while the two men were accorded widespread contempt in the Colorado backwoods, they also commanded a large following all across the state. Roosevelt's support came primarily from urban centers, plains cities such as Denver, Colorado Springs, and Pueblo and Western Slope settlements like Delta and Montrose, areas dependent on the preservation of mountain watersheds for irrigation and water supplies.[71]

The pledge to Colorado and the West that congressional forest reservations would not operate in derogation of state water law was enacted as a provision of the National Forest Organic Act of 1897.[72] Nearly a century later, the United States Supreme Court relied on this provision to reject the notion that the National Forest reservations

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69. Williams v. Midway Ranches Property Owner's Ass'n, Inc., 938 P.2d 515, 522 (Colo. 1997).

70. Homestead Act of 1862, ch. 75, §1, 12 Stat. 392 (1862) (repealed 1976).

71. G. MICHAEL MCCARTHY, HOUR OF TRIAL: THE CONSERVATION CONFLICT IN COLORADO AND THE WEST 1891-1907, 76-77 (1977).

72. 16 U.S.C. § 475 (1994) (dictating in part the applicability of state water law within forest reservations).

were intended to create federal instream flow rights.[73] As of 1973, the Forest Service was administering 14.3 million acres of Colorado timberland.[74]

THE RECLAMATION ERA

Progressive conservationists viewed water storage as a matter of the public interest: "The movement to construct reservoirs so as to conserve spring flood waters for use later in the dry season gave rise both to the term 'conservation' and to the concept of planned and efficient progress, a concept which lay at the heart of the conservation idea."[75] With its provisions for both storage and distribution works, farmers in Colorado embraced the 1902 Reclamation Act.[76] These works would be constructed and financed by the federal government subject to low interest repayment of a portion of the capital and operating costs. As with the National Forest Organic Act, the Reclamation Act preserved the application of state water law.[77]

Whether constructed with federal funds or other financial resources, reservoirs were essential to Colorado's economic well-being. Because stream levels radically drop after the mountain snow melt, Colorado farmers found that direct flow water rights could not supply the "finish water" in August and September before the harvests were in. The growing municipalities were junior in time and right to the senior agricultural ditches and required year round supply. Water storage rights allowed unappropriated water to be captured and preserved for the time of need. Farmers and small towns could not afford the construction of significant and expensive waterworks for storage and long distance conveyance. A revision to the Reclamation Act allowed municipal use to be added as a component of Bureau of Reclamation Reservoirs.[78] The Reclamation Era thus took Powell's survey of water storage sites into the Twentieth Century—first for agricultural use, and then for multi-purpose municipal, industrial, power, and recreational use.

The Reclamation Act gave rise to Colorado irrigation districts, water conservancy districts, and water conservation districts. These districts were empowered by the General Assembly with contracting and financing authority designed to enable local sponsors to enter into reclamation partnerships with the federal government. The earliest proj-

73. *See* United States v. New Mexico, 438 U.S. 696, 712 (1978); United States v. City & County of Denver, 656 P.2d 1, 17-18 (Colo. 1982).

74. *Id.* at 262.

75. SAMUEL P. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT 1890-1920, 5 (1959).

76. Reclamation Act, ch. 1093, 32 Stat. 388 (1902) (current version at 43 U.S.C. §§ 371-616 (1994 and Supp. 1995)).

77. 43 U.S.C. § 383 (1994).

78. 43 U.S.C. § 390 (1994).

ects served Western Slope irrigation uses, such as the Uncompahgre Project on the Gunnison and the Grand Valley Project on the Colorado. The immediate result was that irrigated land on the Western Slope doubled from three hundred thousand to six hundred thousand acres.[79] Much of the effort by Colorado Congressmen Ed Taylor and Wayne Aspinall on behalf of the state was to ensure that citizens on the Colorado River side of the Divide would also benefit.[80]

The Colorado–Big Thompson Project (C–BT) was the first reclamation project to pierce the Continental Divide. It included the Adams Tunnel for bringing water to the farms, cities, and businesses of the seven counties lying in the northeastern part of the state. In 1937, an historic agreement between Western Slope and Eastern Slope water users provided for the construction and operation of Green Mountain Reservoir for the benefit of the Western Slope as a mitigation plan in connection with Eastern Slope diversions through the C–BT Project.[81] The Fryingpan–Arkansas Project of the Bureau of Reclamation and the Southeastern Water Conservancy District, which included Reudi Reservior for the Western Slope, followed suit.[82]

As a result of this 1937 agreement, the Colorado Legislature created the Colorado Water Conservation Board,[83] the Colorado River Water Conservation District,[84] and the Northern Colorado Water Conservancy District.[85] Other reclamation projects followed. The Rio Grande Water Conservation District sponsored the Closed Basin Project[86] while the Animas–La Plata Water Conservancy District and Southwestern Water Conservation District are attempting to implement the Ute Indian Water Rights Settlement—a settlement predicated on Bureau of Reclamation construction of the Animas–La Plata Project.[87] To ensure Upper Colorado River Basin water uses while Colorado River compact deliveries are made to the Lower Basin States of Arizona, Nevada, and California, the Aspinall (Curecanti) Unit of the Colorado River Storage Project exists outside of Gunnison to operate in connection with Navajo Dam in New Mexico, Glen Canyon Dam in Utah, and Flaming Gorge Dam in Wyoming.[88] Were Major Powell to have returned in 1951, he would have "g[otten] the impression that

79. ABBOTT ET AL., *supra* note 28, at 179-80; MEL GRIFFITHS & LYNNEL RUBRIGHT, COLORADO 145, 224 (1983).

80. *See* CAROL EDMONDS, WAYNE ASPINALL: MR. CHAIRMAN (1980).

81. *See* DANIEL TYLER, THE LAST WATER HOLE IN THE WEST (1992).

82. ABBOTT ET AL., *supra* note 28, at 183.

83. COLO. REV. STAT., § 37-60-101 to -130 (1997).

84. COLO. REV. STAT., § 37-45-101 to -153 (1997).

85. *Id.*

86. *See* Closed Basin Landowners Ass'n v. Rio Grande Water Conservation Dist., 734 P.2d 627, 629 (Colo. 1987).

87. *See* Taxpayers for the Animas–La Plata Referendum v. Animas–La Plata Water Conservancy Dist., 739 F.2d 1472 (10th Cir. 1984).

88. *See* NORRIS HUNDLEY, JR., WATER AND THE WEST 334-36 (1975); JOHN UPTON TERRELL, WAR FOR THE COLORADO RIVER, VOL. 2, 276 (1965).

resurrection morn had really dawned."[89]

Reclamation reservoirs form only a part of Colorado and the West's water supply infra-structure. As of 1990, Colorado reservoirs numbered more than 1,900 statewide, with the capability of storing 8.85 million acre feet of water.[90]

GREAT AND GROWING CITIES

In 1908, the Colorado Supreme Court reiterated that cities could not divert water belonging to senior priorities for domestic or other uses without paying just compensation for the taking of property.[91] The court also cautioned that municipal users must be efficient: "the law contemplates an economical use of water . . . . Water is too valuable to be wasted, either through an extravagant application for the purpose appropriated or by waste resulting from the means employed to carry it to the place of use."[92]

A 1913 case established that one town could not prevent another town's water pipeline from passing through its boundaries.[93] The court determined that any person, corporation, or public entity has a right of condemnation under the Colorado Constitution for the conveyance of domestic water, but the town through which the pipeline passes may reasonably regulate the manner in which the pipeline is maintained.[94]

Ownership by a city of its public works, including water, was another goal of progressive conservationists. Denver's purchase of the Union Water Company and its establishment of a citizen water board in 1918 had the primary aim of converting a privately owned monopoly into a public asset.[95] Denver's Moffat Tunnel, built between 1922 and 1928 for the dual purpose of carrying the railroad and Denver's Fraser River and Williams Fork River water, preceded the Northern District's Adams Tunnel, which was commenced in 1944. Denver's Dillon Reservoir on the Blue River, a reservoir which stores water for de-

89. WALLACE STEGNER, BEYOND THE HUNDREDTH MERIDIAN: JOHN WESLEY POWELL AND THE SECOND OPENING OF THE WEST 353 (1954) (But Stegner, Powells' biographer, a quintessential westerner, and an early admirer of both beneficial use and preservation, later became a severe critic of the Reclamation Bureau as the environmental era progressed; *see* WALLACE STEGNER, *Striking the Rock, in* WHERE THE BLUEBIRD SINGS TO THE LEMONADE SPRINGS: LIVING AND WRITING IN THE WEST 76, 79-80 (1992)).

90. COLORADO WATER RESOURCES INSTITUTE, COLORADO'S WATER: CLIMATE, SUPPLY AND DROUGHT 6 (1990).

91. Town of Sterling v. Pawnee Ditch Extension Co., 94 P. 339, 340-41 (Colo. 1908).

92. *Id.* at 341.

93. Town of Lyons v. City of Longmont, 129 P.198, 200 (Colo. 1913).

94. *Id.* (Explaining that the town of Lyons has the authority to prescribe all reasonable and necessary rules and regulations).

95. *See* Bennett Bear Creek Farm Water & Sanitation Dist. v. City and County of Denver, 928 P.2d 1254, 1259 (Colo. 1996).

livery through the Roberts Tunnel, is junior to Green Mountain Reservoir and the Colorado–Big Thompson project.[96] Decades of litigation between Denver on the one hand, and the United States, the Northern District, and the Colorado River District on the other hand, established the senior status of the Western Slope and Northeastern Colorado diversions in this regard.

The General Assembly has vested cities with the authority outside of the jurisdiction of the Public Utilities Commission to set water rates for service within their boundaries and extra-territoriality, and to enter into perpetual water contracts.[97] That great and growing cities have a broad need to serve municipal water purposes was enunciated by the Colorado Supreme Court in 1939.[98]

Today, municipal and quasi-municipal governmental entities such as water and sanitation districts, intergovernmental authorities, water conservancy and water conservation districts, are the foremost actors in the water acquisition arena. For example, the City of Thornton acquired close to half of the shares of a northern Colorado mutual irrigation company. Subsequently, the city's decree for conditional water rights, and exchange and augmentation plans was quantified and approved with numerous conditions to prevent injury. The retained jurisdiction of the water court is included in the decree to monitor uses by the city that may not mature until the mid-twenty first century.[99]

Between 1960 and 1990, withdrawals for domestic uses of water in the West more than doubled, rising from six and a half to fourteen million acre-feet while the region's population grew by seventy-five percent. Agriculture still accounted for seventy-eight percent of total water withdrawals and ninety percent of total consumptive use. Nonetheless, over the next twenty-five years it is projected that the West will add another twenty-eight million residents,[100] and the significance of municipal and quasi-municipal entities will continue to grow.

Because of contemporary permitting difficulties in constructing additional projects for capturing unappropriated water,[101] municipalities must consider alternative water supplies. Possible alternative supplies include the following: the conversion of senior agricultural water through change of use proceedings, the tapping of tributary and nontributary groundwater, and demand side conservation management, recharge, exchange, and augmentation.

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96. *See* United States v. Northern Colo. Water Conservancy Dist., 608 F.2d 422 (10th Cir. 1979).

97. *Id.* at 1261-62.

98. *See* City & County of Denver v. Sheriff, 196 P.2d 836 (Colo. 1939).

99. *See* City of Thornton v. Bijou Irrigation Co., 926 P.2d 1 (Colo. 1996).

100. "WATER IN THE WEST: THE CHALLENGES FOR THE NEXT CENTURY," REPORT BY THE WESTERN WATER POLICY REVIEW ADVISORY COMMISSION 2-27, 2-44, (October 1997).

101. *See* Alameda Water & Sanitation Dist. v. Reilly, 930 F. Supp. 486, 488-89 (D. Colo. 1996) (Two Forks permit veto under Clean Water Act); City of Colorado Springs v. Board of County Comm'rs, 895 P.2d 1105 (Colo. Ct. App. 1994) (exercise of authority under Land Use Act and Local Government Land Use Control Act).

EQUITABLE APPORTIONMENT AND WATER COMPACTS

At midnight on December 21, 1857, Lieutenant Joseph Ives of the United States Corps of Topographical Engineers commenced a steamboat journey up the Colorado River from the Gulf of California. Progress upstream was steady but slow as the explorers surveyed the River and the surrounding countryside. In early March of 1858, the steamboat came to a stunning crash on a rock where Lake Mead now stands in the Black Canyon outside of Las Vegas, Nevada. Ives declared that point of the Colorado River to be the upper end of navigation, and he proceeded overland to the rim of the Grand Canyon where he proclaimed an end to human visitation of this region: "Ours has been the first, and will doubtless be the last, party of whites to visit this profitless locality. It seems intended by nature that the Colorado River, along the greater portion of its lovely and majestic way, shall be forever unvisited and undisturbed."[102]

The 1858 Ives map shows the Little Colorado River as the source of the Colorado River. Eleven years later, Major Powell, tied to a chair on a wooden dory, roared into the gut of the primordial chasm of the Grand Canyon from a long upstream reach. From that point on, the water geography, politics, and law of the Colorado River would tie the Upper Basin and the Lower Basin together.

Colorado came to the 1922 Colorado River Compact negotiations fully informed of the equitable apportionment doctrine and its consequences. In 1907, the United States had argued that the remaining unappropriated waters of the West had been withdrawn from appropriation through the enactment of the 1902 Reclamation Act; development would occur under this theory as the national government saw fit, not otherwise.[103]

Kansas and Colorado argued diametrically opposing theories. Kansas alleged that its riparian water law should require Colorado to by-pass water supplies of the Arkansas River to Kansas because the Kansas Territory, created in 1854, had run to the Continental Divide origins of that river prior to the formation of the Colorado Territory in 1861. Colorado contended that its state constitutional doctrine of prior appropriation had been accepted by the United States Congress when Colorado was admitted to the Union in 1876; thus, all water arising in Colorado was subject to use therein.

Enunciating the doctrine of equitable apportionment, the Supreme Court ruled that each state can choose its own water law, whether riparian or prior appropriation, but no state can impose its choice of law on another state.[104] The national government's interest in the reclamation of arid lands could not supplant the water law selection of either state, and an equitable apportionment of the interstate

102. JOSEPH IVES, ARMY CORPS OF TOPOGRAPHICAL ENGINEERS, REPORT UPON THE COLORADO RIVER OF THE WEST 100 (1861).

103. Kansas v. Colorado, 206 U.S. 46, 92 (1907).

104. *Id.* at 113-14.

water body can be ordered through the exercise of the Court's original jurisdiction. Although they had defeated the national government's water reservation claim, both states were left with the possibility of continuous litigation to determine from time to time what an equitable apportionment between them might be.

Because the irrigated valley of the Arkansas River within Colorado had perfected water rights and productive uses, Colorado won the opening rounds of its struggle with Kansas. However, in 1922, Colorado received a bitter lesson in the judicial application of prior appropriation to the equitable apportionment doctrine.[105] The Court found Wyoming's uses in the Laramie and North Platte River basins to be senior and controlling, thereby precluding future development within Colorado. Even the most ardent proponents of Western prior appropriation law were thunderstruck with the nerve shattering implications of a first in time–first in right state anchoring the interstate river and controlling the destiny of its elevated neighbors.

Delph Carpenter had represented Colorado in the Wyoming case and in disputes with Nebraska over the waters of the Platte River. He turned to the Compact Clause of the United States Constitution as Colorado's best hope for a secure and perpetual allocation of waters arising in Colorado, but shared by eighteen downstream states.[106]

The Colorado River Compact negotiators intended to allow each state to effectuate its own choice of water law and to use its allocated water within its boundaries whenever it might choose in the future—this all without fear of the timing of development in other states, and also to ensure that the United States would not allocate the water contrary to the choice of the states.[107] However, Arizona did not ratify the Colorado River Compact until 1944. As a result of Arizona's delay, and pursuant to the terms of the 1928 Boulder Canyon Project Act,[108] the Secretary of Interior became the administrator and contracting officer for the Lower Basin apportionment among Arizona, California, and Nevada.

A compact is both state and federal law. It is meant to govern interstate water allocation and replace the original jurisdiction of the United States Supreme Court, except with regard to enforcement of the compact. For example, in 1995, the 1948 Arkansas River Compact was enforced against Colorado by decision of the United States Supreme Court.[109] Ratification of a compact may be seen as the exercise by Congress of its power to consent to interstate commerce limitations

105. Wyoming v. Colorado, 259 U.S. 419, 496 (1922).

106. *See* Daniel Tyler, *Delph E. Carpenter And The Principle Of Equitable Apportionment, in* 9 WESTERN LEGAL HISTORY 36, 43 (1996).

107. *See* L. Ward Bannister, The Silver Fox Of The Rockies: A Critic's Views of Delphus Emory Carpenter And The Colorado River Compact 15 (presented by Daniel Tyler at the Colorado River Compact Symposium, Water Education Foundation, May 29, 1997).

108. *See* Arizona v. California, 376 U.S. 340, 342-43 (1964).

109. *See* Kansas v. Colorado, 514 U.S. 673 (1995).

inherent in fulfillment of the compact's purpose.[110] A state may create and vest water rights as property, but only with regard to its allocated share of the interstate waters.[111]

Due to the work of Carpenter and many others, Colorado is a signatory to nine congressionally ratified interstate compacts with other states commencing with the Colorado River agreement in 1922: Colorado River Compact,[112] La Plata River Compact,[113] South Platte River Compact,[114] Arkansas River Compact,[115] Rio Grande River Compact,[116] Republican River Compact,[117] Upper Colorado River Compact,[118] Amended Costilla Creek Compact,[119] and Animas–La Plata Project Compact.[120]

Three equitable apportionment decrees in which Colorado has a continued water allocation interest are *Nebraska v. Wyoming*, *Wyoming v. Colorado*, and *Colorado v. New Mexico*.[121]

INTEGRATION OF FEDERAL RIGHTS

Colorado, like other western states, allocated water and created water rights under its own system of law. In 1907, the United States Supreme Court enunciated the federal reserved water rights doctrine, first recognized for Native American tribal reservations.[122] A federal land reservation, by necessary implication, may involve a United States reservation of unappropriated waters necessary for the primary purposes of the reservation. The water reservation dates to the creation of the land reservation.

Due to the fact that the states could not integrate the federal reserved water rights claims into a unitary system of water rights administration without congressional waiver of sovereign immunity and consent to join federal agencies in state forums, Congress adopted the

110. *See* Simpson v. Highland Irrigation Co., 917 P.2d 1242, 1249 (Colo. 1996).

111. Hinderlider v. La Plata River & Cherry Creek Ditch Co., 304 U.S. 92, 106 (1938).

112. 43 U.S.C. 617 (Boulder Canyon Project Act ratifying the Colorado River Compact), COLO. REV. STAT. 37-61-101 ch. 72 (1997), 42 STAT. 171 ch. 72 (1921) (congressional consent to enter into the compact).

113. COLO. REV. STAT. 37-63-101, ch. 110 (1997), 43 STAT. 796 ch. 110 (1925).

114. COLO. REV. STAT. 37-65-101, ch. 46 (1997), 44(2)STAT. 195 ch. 46 (1926).

115. COLO. REV. STAT. 37-69-101, ch. 155 (1997), 63 STAT. 145 ch. 155 (1949).

116. COLO. REV. STAT. 37-66-101, ch. 155 (1997), 53 Stat. 785 ch. 155 (1939).

117. COLO. REV. STAT. 37-67-101, ch. 104 (1997), PUB.L. 60, 57 STAT. 86 ch. 104 (1943).

118. COLO. REV. STAT. 37-62- 101, ch. 38 (1997), 63 STAT. 31 ch. 48 (1949).

119. COLO. REV. STAT. 37-68-101, PUB.L. 88-198, 77 STAT. 350 (1963).

120. COLO. REV. STAT. 37-64-101 (1997), PUB.L. 90-537, 82 STAT. 898 (1968).

121. Colorado v. New Mexico, 467 U.S. 310 (1984); Wyoming v. Colorado, 353 U.S. 953 (1957); Nebraska v. Wyoming, 325 U.S. 589 (1945).

122. *See* Winters v. United States, 207 U.S. 564 (1907).

McCarran Amendment in 1952.[123] This provided for state court adjudication jurisdiction over federal claims. Colorado led the way in three different cases before the United States Supreme Court in requiring the appearance of the United States in state water proceedings.[124] As a result, the United States has obtained decrees in the seven water division courts for its federally reserved and state appropriative rights to serve uses on federal lands and in federal facilities.

GROUNDWATER

Between 1943 and 1969, the use of tributary groundwater rose dramatically as surface irrigators and municipalities (particularly in the South Platte and Arkansas River Basins) discovered that wells were an efficient means of diversion and were not then subject to curtailment administration in the same manner as surface diversions.

The 1943 Adjudication Act[125] recodified the provisions of Colorado's adjudication law, provided a mechanism for supplementary adjudication and transfers of water rights to changed uses, but made no specific mention of adjudicating rights to groundwater. In contrast, the 1969 Water Right Determination and Administration Act declared that "it is the policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all of the waters of this state."[126]

Knowledge of groundwater and its impact on surface rights grew in the years between the 1943 and the 1969 Adjudication Acts. As out-of-priority pumping of groundwater connected to surface streams came to be recognized as a significant detriment to surface supply, the Colorado Supreme Court, in 1951, articulated a presumption that all groundwater finds its way to a surface stream and is subject to appropriation and administration in priority in times of short supply. One claiming that groundwater is not tributary has the burden of proving that fact by clear and convincing evidence.[127] The Court also held that a well user must sink a tributary well to a reasonable depth and cannot command the level of the aquifer by fixing the point of withdrawal at a shallow depth. However, when the well is at a reasonable depth, a jun-

123. 43 U.S.C. § 666 (1994 and Supp. 1995).

124. *See* Colorado River Water Conservation Dist. v. United States, 424 U.S. 800, 810, 820 (1976); United States v. District Court, 401 U.S. 527, 530 (1971); United States v. District Court, 401 U.S. 520, 525 (1971).

125. Adjudication Act of 1943, ch. 190, 1943 Colo. Sess. Laws 613 (codified at COLO. REV. STAT. §§ 148-9-1 to -27 (1963), *repealed by* The Water Right Determination and Administration Act of 1969, ch. 373, 1969 Colo. Sess. Laws 1200, 1223.)

126. The Water Right Determination and Administration Act of 1969, ch. 373, 1969 Colo. Sess. Laws 1200, 1220 (codified as amended at COLO. REV. STAT. § 37-92-102(1)(a) (1997)).

127. *See* Safranek v. Town of Limon, 228 P.2d 975, 977 (Colo. 1951).

ior may be required by decree to bear the expense of providing the senior with an adequate means of diversion if the junior's lowering of the water table will cause the senior well to fail.[128]

In 1965, the General Assembly adopted the Groundwater Management Act,[129] thereby providing the State Engineer with the authority to issue, condition against injury, or deny permits for any diversion effectuated by means of a well. The Act also established the means for designating groundwater basins to be managed by local groundwater districts, subject to the authority of the Ground Water Commission. Designated groundwater basins are those wherein aquifers with modest recharge and attenuated connection to the stream system are the main source of an area's water supply, such as the Ogallala Aquifer.[130]

With the advent of conjunctive use of tributary groundwater and surface water, the maximum utilization of the waters of the state, through vested rights, was heralded as Colorado's constitutional water law doctrine.[131] Wells which make out-of-priority diversions must replace their depletions by an approved substitute supply or augmentation plan to enable continued operation.[132]

Non-tributary water is not part of the "natural stream" to which the Colorado Constitution's appropriation provisions apply. It is subject instead to the plenary power of the Legislature with regard to its allocation and use.[133] The General Assembly has provided for the establishment of non-tributary groundwater rights according to surface land ownership. Non-tributary groundwater rights become vested rights either by construction of a well or an adjudication, with the amount of authorized withdrawals based upon a hundred year life of the non-tributary supply and the acreage amount of surface ownership.[134] Certain Denver Basin deep groundwater formations are the subject of provisions requiring some augmentation of the surface stream; these bear the confusing designation "not non-tributary."[135]

The Legislature has provided that small capacity wells which draw from tributary aquifers for domestic single household purposes may

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128. *See* City of Colorado Springs v. Bender, 366 P.2d 552, 555 (Colo. 1961).

129. COLO. REV. STAT. §§ 37-90-101 to -143 (1997).

130. *See* Colorado Ground Water Comm'n v. Eagle Peak Farms, Ltd., 919 P.2d 212, 215 (Colo. 1996); Danielson v. Vickroy, 627 P.2d 752, 756 (Colo. 1981).

131. *See* Fellhauer v. People, 447 P.2d 986, 994-95 (Colo. 1968).

132. *See* COLO. REV. STAT. §§ 37-90-137(2), 37-92-305(5), (6), (8) (1997).

133. *See* State v. Southwestern Colo. Water Conservation Dist., 671 P.2d 1294, 1316 (Colo. 1983).

134. *See* COLO. REV. STAT. § 37-90-137(4) (1997); Bayou Land Co. v. Talley, 924 P.2d 136 (Colo. 1996).

135. *See* COLO. REV. STAT. § 37-90-137(9)(c)(I) (1997). (The definition of "not non-tributary is found at COLO. REV. STAT. § 37-90-103(10.7). '"Not nontributary ground water" means ground water located within those portions of the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers that outside the boundaries of any designated ground water basin in existence on January 1, 1985, the withdrawal of which will, within one hundred years, deplete the flow of a natural stream, including a natural stream as defined in sections 37-82-101(2) and 37-92-102(1)(b), at an annual rate of greater than one-tenth of one percent of the annual rate of withdrawal').

divert under a presumption of non-injurious effect to other rights. These wells may be adjudicated with a date of priority relating back to issuance of their permit for the purpose of seeking protection vis-a-vis water rights that are junior to them.[136]

THE ENVIRONMENTAL ERA

In 1965 the Colorado Supreme Court declared that the maintenance of instream flow "is a riparian right and is completely inconsistent with the doctrine of prior appropriation."[137] However, in 1979, the Court upheld the constitutionality of Colorado's 1973 statute which allowed the Colorado Water Conservation Board to make and enforce minimum stream flow and lake level appropriations in priority for the purpose of preserving the environment to a reasonable degree.[138] The environmental era had intervened. The Legislature was concerned about potential preemption of Colorado water law if a way to integrate instream flow rights within the appropriation doctrine could not be devised. The Conservation Board's statutory program requires the Board to consult with and take into account federal agency recommendations, including those of the Forest Service and the U.S. Fish and Wildlife Service, but the ultimate determination of the amount to be appropriated and maintained is assigned to the Conservation Board's sound discretion under the statute's criteria.[139]

In contrast to California, Colorado has not adopted the public trust doctrine.[140] Nor is "the public interest" employed as a water allocation factor in Colorado water adjudication proceedings.[141] Nonetheless, since a water right comes into being only by application of water to beneficial use, the inability to obtain a needed regulatory permit or obtain financing for needed waterworks may effectively prevent the maturation of a conditional right into a perfected water right. Colorado's "can and will" doctrine recognizes that conditional rights, which hold a place in the priority system predicated on actual use being made, might not ripen into water rights.[142] Speculative acquisition or retention of conditional rights is not allowed,[143] and water users hoping

136. *See* Shirola v. Turkey Canon Ranch Ltd. Liab. Co., 937 P.2d 739 (Colo. 1997).

137. *See* Colorado River Water Conservation Dist. v. Rocky Mountain Power Co., 406 P.2d 798, 800 (Colo. 1965).

138. *See* Colorado River Water Conservation Dist. v. Colorado Water Conservation Board, 594 P.2d 570, 574-76 (Colo. 1979).

139. *See* COLO. REV. STAT. § 37-92-102(3), (4) (1997); City of Thornton v. Bijou Irrigation Co., 926 P.2d 1, 94 (Colo. 1996).

140. *See* People v. Emmert, 597 P.2d 1025, 1027-28 (Colo. 1979).

141. *See* Aspen Wilderness Workshop, Inc. v. Hines Highlands Ltd. Partnership, 929 P.2d 718 (Colo. 1996).

142. *See* Board of County Comm'rs v. United States, 891 P.2d 952, 972 (Colo. 1995).

143. *See* Dallas Creek Water Co. v. Huey, 933 P.2d 27, 35 (Colo. 1997); Colorado River Water Conservation Dist. v. Vidler Tunnel Water Co., 594 P.2d 566, 568 (Colo. 1979).

to improve the priority status of their rights often challenge each others' conditional rights at the time a finding of reasonable diligence is sought from the water court.

The maximum utilization doctrine enunciated in *Fellhauer*[144] has been tempered by the Colorado Supreme Court's reference to "optimum use" requiring that "proper regard for all significant factors, including environmental and economic concerns," be taken into account.[145] The court foreshadowed the possibility that a balancing of resource use might be applicable when it refused to endorse the removal of water loving vegetation as a means for "developing" water free of the river's call.[146] Draining of a peat bog or wetlands,[147] or creating impermeable land surfaces, such as by paving,[148] have likewise been disallowed as a means for obtaining additional consumptive use or augmentation water.

The Endangered Species Act,[149] the Federal Clean Water Act[150] and the Federal Land Policy and Management Act[151] have created significant environmental review and approval requirements attendant to obtaining a federally required permit to build waterworks necessary to perfect a water right.[152] The Environmental Protection Agency ("EPA") vetoed the Two Forks Project Permit under its section 404(c) Clean Water Act authority.[153] At the state level, Eagle County invoked Colorado land use statutes to review a water project of the cities of Aurora and Colorado Springs.[154] In *Riverside Irrigation District v. Andrews*, the court construed section 101(g) of the Clean Water Act[155] as expressing that "Congress did not want to interfere any more than necessary with state water management." Furthermore, the Court refused to decide whether, in the event of irreconcilable conflict, the Endangered Species Act supersedes the congressionally ratified South Platte River Compact.[156] Colorado has worked to avoid head-on conflict. Endangered species recovery plans in the Platte and Upper Colorado River Basins are being pursued in conjunction with Colorado's use of its water compact entitlements.[157]

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144. *See* Fellhauer v. People, 447 P.2d 986, 986 (Colo. 1968).

145. *See* Alamosa La Jara Water Users Protection Ass'n. v. Gould, 674 P.2d 914, 923 (Colo. 1983).

146. *See* Southeastern Colo. Water Conservancy Dist. v. Shelton Farms, Inc., 529 P.2d 1321, 1327 (Colo. 1974).

147. R.J.A., Inc. v. Water Users Ass'n, 690 P.2d 823, 828 (Colo. 1984).

148. *See* State Eng'r v. Castle Meadows, Inc., 856 P.2d 496, 510 (Colo. 1993).

149. 16 U.S.C. §§ 1531-1544 (1994 and Supp. 1995).

150. 33 U.S.C. §§ 1251-1387 (1994 and Supp. 1995).

151. 43 U.S.C. §§ 1701-1784 (1994 and Supp. 1995).

152. *See* Riverside Irrigation Dist. v. Andrews, 758 F.2d 508, 514 (10th Cir. 1985).

153. 33 U.S.C. § 1344(c) (1994 and Supp. 1995). *See* Alameda Water & Sanitation Dist. v. Reilly, 930 F. Supp. 486, 488-89 (D. Colo. 1996).

154. *See* City of Colorado Springs v. Board of County Comm'rs, 895 P.2d 1105 (Colo. Ct. App. 1995).

155. 33 U.S.C. § 1251(g) (1994 and Supp. 1995).

156. *See Riverside Irrigation Dist.*, 758 F.2d at 513.

157. *See* David H. Getches, *Colorado River Governance: Sharing Federal Authority as an*

Basin wide efforts to meet environmental standards while the states continue development and use of their interstate apportioned waters have precedent. The Colorado River Basin Salinity Control Program is a seven basin state/federal initiative designed to maintain water quality standards for salinity at three compliance points in the Lower Basin. State line salinity standards were deemed unnecessary in light of this undertaking to achieve salinity water quality standards adopted by the EPA.[158] An effort to require EPA permit regulation of dams throughout the United States as point sources of pollution was also rejected by the Federal Court of Appeals.[159] The State of Colorado and several of its water user districts appeared as *amicus* on behalf of EPA in both cases, while environmental organizations active in Colorado appeared as plaintiff in those suits.

Colorado environmental and water user interests joined in supporting the 1986 congressional designation of seventy-five miles of the Cache La Poudre River as a Wild and Scenic River with its attendant creation of a federal water right junior to pre-existing state water rights.[160] These interests also supported the 1993 Colorado Wilderness Act[161] which preserved any pre-existing federal water rights and disclaimed congressional intention to create a wilderness reserved water right with regard to that Act.

State and federal statutes and administrative policies have always affected Colorado's prior appropriation law. The Colorado Water Quality Control Commission has extensive authority to regulate point and non-point sources of pollution,[162] but cannot impose minimum stream flows for pollution program purposes.[163] State water law does not attempt to comprehensively address environmental concerns; those are addressed primarily though land use and environmental regulatory laws, and land and water purchase and reservation programs.

Colorado's system of transferable water rights allows a market in new and changed uses to occur. Riparian water law, unlike prior appropriation law, is not well suited to a market approach because that legal system restricts the use of water to riparian landowners within the watershed, severely limits the amount of water that can be consumed, and does not promote the efficient allocation of water.[164]

Incentive to Create a New Institution, 68 U. COLO. L. REV. 573, 623-65 (1997) (examining the Cooperative Agreement For Platte River Research And Other Efforts Relating To Endangered Species Habitats Along The Central Platte River in Nebraska).

158. *See* Environmental Defense Fund, Inc. v. Costle, 657 F.2d 275, 288 (D.C. Cir. 1981).

159. *See* National Wildlife Fed'n v. Gorsuch, 693 F.2d 156, 175 (D.C. Cir. 1982).

160. Act of Oct. 30, 1986, Pub. Law No. 99-590, 100 Stat. 3330-32.

161. Colorado Wilderness Act of 1993, Pub. Law No. 103-77, 107 Stat. 756-65.

162. COLO. REV. STAT. § 25-8-101 to -703 (1997).

163. *See* City of Thornton v. Bijou Irrigation Co., 926 P.2d 1, 91-92 (Colo., 1996).

164. *See* A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES, 2.05(1) at 2-12.

Market transfers are grounded in property law and depend upon the right to reduce a public resource to private possession:

> Four characteristics (have been identified as) necessary to convert a common property resource to a regime of individual property rights in order to induce market allocation. They are (1) maximum exclusivity within the constraint of the physical nature of the resource; (2) free transfer at costs which are low relative to the value of the resource; (3) absence of positive and negative externalities that prevent the transfer of the resource or impose excessive, unaccounted for costs on third parties, and (4) a clear, general definition of permitted and prohibited activities.[165]

As a result of over-appropriated streams, environmental permitting requirements for surface diversions, and resistance by local areas to diversions for other areas of the state, cities seeking additional water supplies are looking increasingly to water transfers, out-of-priority diversions by wells and augmentation plans utilizing replacement water sources, and use of with non-tributary water.[166]

CONCLUSION

The irrigated use sector contains a large reservoir of water for agricultural production, conserved open space, and infra-structure that has long-lasting value to Colorado. To what extent that resource should support the increasing urbanization of the state will be determined by voluntary market transfers and regulatory choices. Under Colorado law, conditional water rights and water storage rights will continue to function as an essential element in use of the state's allocated share of interstate waters. The needs and values of twenty-first century citizens will shape and reshape a water law which is well-grounded in the history and heritage of this magnificent land.

Prior appropriation law is egalitarian, equitable, and efficient in that: (1) beneficial uses are recognized without regard to the economic value which will be produced therefrom (e.g., the individual subsistence farmer and the manufacturing corporation are equally entitled to appropriate unappropriated water); (2) access to the available supply is based on the need for a beneficial purpose; and (3) no more water belongs to the water right than the amount reasonably necessary under the circumstances to effectuate the use.

If economic efficiency is defined to mean that water should serve the highest value need, then economic efficiency is not achieved by

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165. *See* DeVany et al., *A Property System for Market Allocation of the Electromagnetic Spectrum: A Legal-Economic Engineering Study*, 21 STAN. L. REV. 1499 (1969), *cited in* A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES, 2.05(1) at 2-11, n.3.

166. *See* Williams v. Midway Ranches Property Owners Ass'n, Inc., 938 P.2d 515, 521-22 (Colo. 1997).

the system except through voluntary transfers in the market place. Furthermore, reallocating water to junior uses by involuntary means to serve emerging social and environmental policy choices is not permitted under the water law, unless that reallocation is carried out through the proper channels of condemnation, with payment of just compensation. Nevertheless, regulation within the police power of local, state and federal government authority may significantly affect the operation of the appropriation doctrine. For example, when the necessary permits to construct water works cannot be obtained, a conditional water right may not become a vested, perfected water right.

Because of its birth within the public domain, the West has been, is, and always will be shaped by values of beneficial use and preservation amidst a vast, beautiful, and rapidly urbanizing landscape. Water, the intermediary substance of life, will flow and pool, be guarded and traded, dance and sing, be used, consumed, and returned as Colorado, mother of many rivers, continues to play its vital role in water policy.

APPENDIX

COLORADO WATER LAW: A SYNOPSIS OF STATUTES AND CASE LAW

SELECTIONS BY JUSTICE GREGORY J. HOBBS, JR.

Institutes of Justinian

"By the law of nature these things are common to mankind—the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and buildings, which are not, like the sea, subject only to the law of nations."

Institutes of Justinian, II.I.1 (with Introduction, Translation and Notes by Thomas Collett Sandars, 1876).

"All rivers and ports are public; hence the right of fishing in a port, or in rivers, is common to all men."

Id. at II.I.2.

"The public use of the banks of a river is part of the law of nations, just as is that of the river itself. All persons therefore are as much at liberty to bring their vessels to the bank, to fasten ropes to the trees growing there, and to place any part of their cargo there, as to navigate the river itself. But the banks of a river are the property of those whose land they adjoin; and consequently the trees growing on them are also the property of the same persons."

Id. at II.I.4.

English Common Law

"Running water, as far as it is not tidal, belongs *prima facie* to the owners of the land on either side of it, subject to the public right of navigation, where such exists . . . therefore the public cannot gain by prescription or otherwise a legal right to fish in a non-tidal river, even though it be navigable . . . ."

JAMES WILLIAMS, THE INSTITUTES OF JUSTINIAN ILLUSTRATED BY ENGLISH LAW 84 (2d ed. 1893).

Constitution of the United States

Property Clause
Territory or Property of the United States

"The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be so construed as to Prejudice any Claims of the United States, or of any particular State."

U.S. CONST. art. IV, § 3(2).

Commerce Clause
Power of Congress to regulate commerce

"To regulate commerce with foreign nations, and among the several States, and with the Indian tribes."

U.S. CONST. art. I, § 8(3).

Supremacy Clause
Supreme Law

"The Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any things in the Constitution or Laws of any State to the Contrary notwithstanding."

U.S. CONST. art. VI, (2).

Takings Clause of Fifth Amendment

"No person shall . . . be deprived of life, liberty, or property, without due process of law . . . nor shall private property be taken for public use, without just compensation."

U.S. CONST. amend. V.

Takings Clause of Fourteenth Amendment

"[N]or shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

U.S. CONST. amend. XIV, § 1.

The Louisiana Purchase of 1803

Treaty between the United States of America and the French Republic, Apr. 30, 1803, U.S. - Fr., 8 Stat. 200-13.

The Lewis and Clark Expedition

"The object of your mission is single, the direct water communication from sea to sea formed by the bed of the Missouri & perhaps the Oregon."

LETTERS OF THE LEWIS AND CLARK EXPEDITION, WITH RELATED DOCUMENTS 1783-1854, 136-38 (Donald Jackson ed., 2d. ed. 1978) *reprinted in* STEPHEN E. AMBROSE, UNDAUNTED COURAGE: MERIWETHER LEWIS, THOMAS JEFFERSON AND THE OPENING OF THE AMERICAN WEST 116 (Simon and Schuster 1996).

Homestead Act of 1862
An Act to secure Homesteads to actual Settlers on the Public Domain.

"[A]ny person who is the head of a family, or who has arrived at the age of twenty-one years, and is a citizen of the United States, or who shall have filed his declaration of intention to become such, as required by the naturalization laws of the United States, and who has never borne arms against the United States Government or given aid and comfort to its enemies, shall, from and after the first January, eighteen hundred and sixty-three, be entitled to enter one quarter section or a less quantity of unappropriated public lands, upon which said person may have filed a preemption claim . . . ."

Homestead Act of 1862, ch. 75, §1, 12 Stat. 392 (1862) (repealed 1976).

Mining Act of 1866

"Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes, have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same; and the right of way for the construction of ditches and canals for the purposes aforesaid is hereby acknowledged and confirmed . . . ."

Mining Act of 1866, ch. 262, §9, 14 Stat. 253 (1866) (current version at 43 U.S.C. §661 (1994)).

Riparian Doctrine (common law)
Tyler v. Wilkinson

"*Prima facie* every proprietor upon each bank of a river is entitled to the land, covered with water, in front of his bank, to the middle thread of the stream, or, as it is commonly expressed, *usque ad filum aquae.* In virtue of this ownership he has a right to the use of the water flowing over it in its natural current, without diminution or obstruction. But,

strictly speaking, he has no property in the water itself; but a simple use of it, while it passes along. The consequence of this principle is, that no proprietor has a right to use the water to the prejudice of another. It is wholly immaterial, whether the party be a proprietor above or below, in the course of the river; the right being common to all the proprietors on the river, no one has a right to diminish the quantity which will, according to the natural current, flow to a proprietor below, or to throw it back upon a proprietor above. This is the necessary result of the perfect equality of right among all the proprietors of that, which is common to all . . . . There may be, and there must be allowed of that, which is common to all, a reasonable use. The true test of the principle and extent of the use is, whether it is to the injury of the other proprietors or not."

Tyler v. Wilkinson, 24 F. Cas. 472, 474 (C.C.D.R.I. 1827) (No. 14,312).

Reasonable Use
Pyle v. Gilbert

"'Under a proper construction [of the pertinent Code sections] every riparian owner is entitled to a reasonable use of the water in the stream. *If the general rule that each riparian owner could not in any way interrupt or diminish the flow of the stream were strictly followed, the water would be of but little practical use to any proprietor, and the enforcement of such rule would deny, rather than grant, the use thereof.* Every riparian owner is entitled to a reasonable use of the water. Every such proprietor is also entitled to have the stream pass over his land according to its natural flow, subject to such disturbances, interruptions, and diminutions as may be necessary and unavoidable on account of the reasonable and proper use of it by other riparian proprietors. Riparian proprietors have a common right in the waters of the stream, and the necessities of the business of one cannot be the standard of the rights of another, but each is entitled to a reasonable use of the water with respect to the rights of others.'"

Pyle v. Gilbert, 265 S.E.2d 584, 587 (Ga. 1980) (*quoting* Price v. High Shoals Mfg. Co., 64 S.E. 87, 88 (Ga. 1909)).

Riparian/ Prior Appropriation Hybrid (California Doctrine)
Lux v. Hagin

"[O]ne who acquired a title to riparian lands from the United States prior to the act of July 26, 1866, could not (in the absence of reservation in his grant) be deprived of his common-law rights to the flow of the stream by one who appropriated its waters after the passage of that act."

Lux v. Hagin, 10 P. 674, 727 (Cal. 1886).

Colorado Territorial Laws 1861
An Act to Protect and Regulate the Irrigation of Lands

Section 1.

"That all persons who claim, own or hold a possessory right or title to any land or parcel of land within the boundary of Colorado Territory, as defined in the Organic Act of said Territory, when those claims are on the bank, margin or neighborhood of any stream of water, creek or river, shall be entitled to the use of the water of said stream, creek or river, for the purposes of irrigation, and making said claims available, to the full extent of the soil, for agricultural purposes."
Colo. Territorial Laws 67 (1861).

Section 2.

"That when any person, owning claims in such locality, has not sufficient length of area exposed to said stream in order to obtain a sufficient fall of water necessary to irrigate his land, or that his farm or land, used by him for agricultural purposes, is too far removed from said stream and that he has no water facilities on those lands, he shall be entitled to a right of way through the farms or tracts of land which lie between him and said stream, or the farms or tracts of land which lie above and below him on said stream, for the purposes as herein before stated."
Id. at 67.

Section 4.

"That in case the volume of water in said stream or river shall not be sufficient to supply the continual wants of the entire county through which it passes, then the nearest justice of the peace shall appoint three commissioners as hereinafter provided, whose duty it shall be to apportion, in a just and equitable proportion, a certain amount of said water upon certain or alternate weekly days to different localities, as they may, in their judgment, think best for the interests of all parties concerned, and with due regard to the legal rights of all . . . ."
Id. at 68.

Prior Appropriation (Colorado Doctrine)
Yunker v. Nichols

"When the lands of this territory were derived from the general government, they were subject to the law of nature, which holds them barren until awakened to fertility by nourishing streams of water, and the purchasers could have no benefit from the grant without the right to irrigate them. It may be said, that all lands are held in subordination to the dominant right of others, who must necessarily pass over

them to obtain a supply of water to irrigate their own lands, and this servitude arises, not by grant, but by operation of law."
Yunker v. Nichols, 1 Colo. 551, 555 (1872).

"I conceive that, with us, the right of every proprietor to have a way over the lands intervening between his possessions and the neighboring stream for the passage of water for the irrigation of so much of his land as may be actually cultivated, is well sustained by force of the necessity arising from local peculiarities of climate . . . ."
Id. at 570.

"It seems to me, therefore that the right springs out of the necessity, and existed before the statute was enacted, and would still survive though the statute were repealed."
Id.

"If we say that the statute confers the right, then the statute may take it away, which cannot be admitted."
Id.

Colorado Constitution of 1876
Article XVI Mining and Irrigation

Irrigation

Section 5. Water of Streams of public property.
"The water of every natural stream, not heretofore appropriated, within the state of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided."
COLO. CONST. art. XVI, § 5.

Section 6. Diverting unappropriated water–priority preferred uses.
"The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied. Priority of appropriation shall give the better right as between those using the water for the same purpose; but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using the water for agricultural purposes shall have preference over those using the same for manufacturing purposes."
COLO. CONST. art. XVI, § 6.

Section 7. Right-of-way for ditches, flumes.

"All persons and corporations shall have the right-of-way across public, and corporate lands for the construction of ditches, canals and flumes for the purpose of conveying water for domestic purposes, for the irrigation of agricultural lands, and for mining and manufacturing purposes, and for drainage, upon payment of just compensation."

COLO. CONST. art. XVI, § 7.

Adjudication Act of 1879

Section 18.

"It shall be the duty of said water commissioners to divide the water in the natural stream or streams of their district among the several ditches taking water from the same, according to the prior rights of each respectively; in whole or in part to shut and fasten, or cause to be shut and fastened, by order given to any sworn assistant sheriff or constable of the county in which the head of such ditch is situated, the head-gates of any ditch or ditches heading in any of the natural stream of the district, which, in a time of a scarcity of water, shall not be entitled to water by reason of the priority of the rights of others below them on the same stream."

1879 Sess. Laws at 99-100.

Section 19.

"For the purpose of hearing, adjudicating and settling all questions concerning the priority of appropriations of water between ditch companies and other owners of ditches drawing water for irrigation purposes from the same stream or its tributaries within the same water district, and all other questions of law and questions of right growing out of or in any way involved or connected therewith, jurisdiction is hereby vested exclusively in the district court of the proper county; but when any water district shall extend into two or more counties, the district court of the county in which the first regular term after the first day of December in each year shall soonest occur, according to the law then in force, shall be the proper court in which the proceeding for said purpose, as hereinafter provided for, shall be commenced . . . ."

1879 Sess. Laws at 99-100.

Adjudication Act of 1881

Section 1.

"In order that all parties may be protected in their lawful rights to the use of water for irrigation, every person, association or corporation owning or claiming any interest in any ditch, canal or reservoir, within any water district, shall, on or before the first day of June, A.D. 1881,

file with the clerk of the district court having jurisdiction of priority of right to the use of water for irrigation in such water district, a statement of claim, under oath, entitled of the proper court, and in the matter of priorities of water rights in district number _____, as the case may be . . . ."

1881 Sess. Laws at 142.

Coffin v. Left Hand Ditch Company

"We conclude, then, that the common law doctrine giving the riparian owner a right to the flow of water in its natural channel upon and over his lands, even though he makes no beneficial use thereof, is inapplicable to Colorado. Imperative necessity, unknown to the countries which gave it birth, compels the recognition of another doctrine in conflict therewith. And we hold that, in the absence of express statutes to the contrary, the first appropriator of water from a natural stream for a beneficial purpose has, with the qualifications contained in the constitution, a prior right thereto, to the extent of such appropriation."

Coffin v. Left Hand Ditch Co., 6 Colo. 443, 447 (1882).

"We have already declared that water appropriated and diverted for a beneficial purpose, is, in this country, not necessarily an appurtenance to the soil through which the stream supplying the same naturally flows. If appropriated by one prior to the patenting of such soil by another, it is a vested right entitled to protection, though not mentioned in the patent."

Id. at 449.

"In the absence of legislation to the contrary, we think that the right to water acquired by priority of appropriation thereof is not in any way dependent upon the *locus* of its application to the beneficial use designed."

Id.

Thomas v. Guiraud

"We concede that Guiraud could not appropriate more water than was necessary to irrigate his land; that he could not divert the same for the purpose of irrigating lands which he did not cultivate or own, or hold by possessory right or title, to the exclusion of a subsequent *bona fide* appropriator."

Thomas v. Guiraud, 6 Colo. 530, 532 (1883).

"The true test of appropriation of water is the successful application thereof to the beneficial use designed; and the method of diverting or carrying the same, or making such application, is immaterial."
Id. at 533.

Larimer County Reservoir Co. v. People *ex rel.* Luthe

"While a diversion must of necessity take place before the water is actually applied to the irrigation of the soil, the appropriation thereof is, in legal contemplation, made when the act evidencing the intent is performed. Of course such initial act must be followed up with reasonable diligence, and the purpose must be consummated without unnecessary delay . . . . The act of utilizing as a reservoir a natural depression, which included the bed of the stream, or which was found at the source thereof, was not *in and of itself* unlawful."
Larimer County Reservoir Co. v. People *ex rel.* Luthe, 9 P. 794, 796 (Colo. 1886).

"He who attempts to appropriate water in this way does so at his peril. He must see to it that no legal right of prior appropriators, or of other persons, is in any way interfered with by his acts. He cannot lessen the quantity of water, seriously impair its quality, or impede its natural flow, to the detriment of others who have acquired legal rights therein superior to his . . . ."
Id.

"While the legislature cannot prohibit the appropriation or diversion of unappropriated water, for useful purposes, from natural streams upon the public domain, that body has the power to regulate the manner of effecting such appropriation or diversion. It may, by reasonable and constitutional legislation, designate how the water shall be turned from the stream, or how it shall be stored and preserved."
Id. at 797.

Farmers High Line Canal & Reservoir Co. v. Southworth

"It is well established that no mere diversion of water from a stream will constitute the constitutional appropriation. To make it such it must be applied to some beneficial use, and in case of irrigation it must be actually applied to the land before the appropriation is complete."
Farmers High Line Canal & Reservoir Co. v. Southworth, 21 P. 1028, 1029 (Colo. 1889).

Strickler v. City of Colorado Springs

"The fundamental principle of this system is that priority in point of time gives superiority of right among appropriations for like beneficial purposes . . . . [I]f . . . the appropriator of water from a stream be held to have no claim upon the water of the tributaries of that stream, then defendant's water supply is liable to be cut off by settlers above at any time,—a conclusion so manifestly unjust that it must be discarded."
Strickler v. City of Colorado Springs, 26 P. 313, 315 (Colo. 1891).

"The authorities seem to concur in the conclusion that the priority to the use of water is a property right. To limit its transfer, as contended by appellee, would in many instances destroy much of its value . . . . We grant that the water itself is the property of the public. Its use, however, is subject to appropriation, and in this case it is conceded that the owner has the paramount right to such use. In our opinion this right may be transferred by sale so long as the rights of others, as in this case, are not injuriously affected thereby."
Id. at 316.

Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co.

"[W]e are quite of the opinion that the title and rights of the prior appropriating company were not absolute, but conditional, and they were obligated to so use the water that subsequent locators might, like lower riparian owners, receive the balance of the stream unpolluted, and fit for the uses to which they might desire to put it."
Suffolk Gold Mining & Milling Co. v. San Miguel Consol. Mining & Milling Co., 48 P. 828, 832 (Colo. Ct. App. 1897) (citations omitted).

"It is therefore quite consonant with the apparent purpose and declared will of the people to subject the rights of the appropriators of the public waters of the state to such limitations as shall tend not only to conserve the property interests which the appropriators may acquire, but to preserve the remaining unappropriated waters in their original condition for the use and benefit of late comers, who by their labors and industry may further develop our interests and resources."
Id.

National Forest Organic Act of 1897

"All waters within the boundaries of national forests may be used for domestic, mining, milling, or irrigation purposes, under the laws of the State wherein such national forests are situated, or under the laws

of the United States and the rules and regulations established thereunder."

National Forest Organic Act of 1897, ch. 2, § 1, 30 Stat. 36 (1897) (current version at 16 U.S.C. § 481 (1994).

Reclamation Act of 1902

§ 372. Water right as appurtenant to land extent of right.

"The right to the use of water acquired under the provisions of this Act shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right."

Reclamation Act of 1902, ch. 1093, § 8, 32 Stat 390 (1902) (current version at 43 U.S.C. § 372 (1994)).

§ 383. Vested rights and State laws unaffected.

"Nothing in this Act shall be construed as affecting or intended to affect or to in any way interfere with the laws of any State or Territory relating to the control, appropriation, use or distribution of water used in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws, nothing herein shall in any way affect any right of any State or of the Federal government or of any landowner, appropriator, or user of water, in, to, or from any interstate stream or the waters thereof."

Reclamation Act of 1902, ch. 1093, § 8, 32 Stat 390 (1902) (current version at 43 U.S.C. § 383 (1994)).

Adjudication Act of 1903

Section 1.

"That the owner or owners of any water rights derived from any natural stream, water-course or any other source, acquired by appropriation and used for any beneficial purpose other than irrigation, may have his or their right thereto established and decreed by the district court having jurisdiction of the adjudication of water rights for irrigation purposes in the water district in which said water rights are situated, by petitioning said court in the same manner and by complying with the procedure and the requirements of the law now applicable to the adjudication of water rights for irrigation purposes."

1903 Colo. Sess. Laws at 297.

New Cache La Poudre Irrigating Co. v. Arthur Irrigation Co.

"The object of the irrigation statutes providing for the adjudication of priorities was to settle such priorities and secure the orderly distribution of water for irrigation purposes. To further effect this object officials have been designated, whose duty it is to distribute the water in accordance with the adjudication. The decree in such proceedings is the guide for such officials from which they must determine, in the discharge of their duties, the relative rights of parties, the volume to which different ditches are entitled, the point of diversion, and all other data necessary to a distribution of water in accordance with its provisions. To obtain an order allowing a change in the point of diversion is, in effect, a modification or change in the adjudication decree. In order to protect officials in the discharge of their duties in distributing water, to preserve the peace, to prevent a multiplicity of suits, to relieve the officer from being required to ascertain, at his peril, any of the various questions which he might be required to consider when requested to change the point of diversion, and finally, that there may be a judicial ascertainment of the right to such change, which shall bind all parties and not leave the place of diversions to the whim of interested parties, the act of 1899 was passed . . . . All persons who may be affected by the desired change must be notified of the proceeding, and given an opportunity to be heard before the court is authorized to enter an order allowing such change."

New Cache La Poudre Irrigating Co. v. Arthur Irrigation Co., 87 P. 799, 800 (Colo. 1906).

Kansas v. Colorado

"[Each State] may determine for itself whether the common law rule in respect to riparian rights or that doctrine which obtains in the arid regions of the West of the appropriation of waters for the purposes of irrigation shall control. Congress cannot enforce either rule upon any state."

Kansas v. Colorado, 206 U.S. 46, 94 (1907).

"[I]f the depletion of the waters of the river by Colorado continues to increase there will come a time when Kansas may justly say that there is no longer an equitable division of benefits, and may rightfully call for relief against the action of Colorado, its corporations and citizens in appropriating the waters of the Arkansas for irrigation purposes. The decree will also dismiss the bill of the state of Kansas as against all the defendants, without prejudice to the right of the plaintiff to institute new proceedings whenever it shall appear that through a material increase in the depletion of the waters of the Arkansas by Colorado, its

corporations or citizens, the substantial interests of Kansas are being injured to the extent of destroying the equitable apportionment of benefits between the two states resulting from the flow of the river."
Id. at 117-18.

Winters v. United States

"The case, as we view it, turns on the agreement of May, 1888, resulting in the creation of Fort Belknap Reservation."
Winters v. United States, 207 U.S. 564, 575 (1907).

"The power of the government to reserve the waters and exempt them from appropriation under the state laws is not denied, and could not be. That the Government did reserve them we have decided, and for a use which would be necessarily continued through years. This was done May 1, 1888, and it would be extreme to believe that within a year Congress destroyed the reservation and took from the Indians the consideration of their grant, leaving them a barren waste—took from them the means of continuing their old habits, yet did not leave them the power to change to new ones."
Id. at 577 (citations omitted).

Town of Sterling v. Pawnee Ditch Extension Co.

"Section 6, art. 16, Const., states that those using water for domestic purposes shall have the preference over those claiming for any other purpose, but this provision does not entitle one desiring to use water for domestic purposes, as intended by the defendant town of Sterling to take it from another who has previously appropriated it for some other purpose, without just compensation. Rights to the use of water for a beneficial purpose, whatever the use may be, are property, in the full sense of that term, and are protected by section 15, art. 2, Const., which says that 'private property shall not be taken or damaged for public or private use without just compensation.'"
Town of Sterling v. Pawnee Ditch Extension Co., 94 P. 339, 340 (Colo. 1908).

"The law contemplates an economical use of water. It will not countenance the diversion of a volume from a stream which, by reason of the loss resulting from the appliances used to convey it, is many times that which is actually consumed at the point where it is utilized. Water is too valuable to be wasted, either through an extravagant application for the purpose appropriated or by waste resulting from the means employed to carry it to the place of use, which can be avoided by the exercise of a reasonable degree of care to prevent unnecessary loss, or loss of a volume which is greatly disproportionate to that actually con-

sumed. An appropriator, therefore, must exercise a reasonable degree of care to prevent waste through seepage and evaporation in conveying it to the point where it is used."

Id. at 341-42 (citations omitted).

Sternberger v. Seaton Mountain Electric, Light, Heat & Power Co.

"Not only the name of the corporation, but certain allegations of the complaint, indicate that defendant corporation was organized for a legitimate purpose and can lawfully acquire, by making an appropriation in its own behalf, or by purchase a valid appropriation of the waters of a natural stream in this state, by using which, as an agency, it may produce and sell light, heat, and power."

Sternberger v. Seaton Mountain Electric, Light, Heat & Power Co., 102 P. 168, 170 (Colo. 1909).

Town of Lyons v. City of Longmont

"The sole question involved is, whether the city of Longmont has the right to condemn a right of way for its pipeline through the streets and alleys of the town of Lyons. Independent of statutory provisions cited by counsel for plaintiff in error, we think this right is conferred by the constitutional provision above quoted. It declares that all persons and corporations shall have the right of way across public, private and corporate lands, for the purpose of conveying water for domestic purposes. The intent of a constitutional provision is the law. Manifestly the intent of the provision under consideration was to confer upon all persons and corporations the right of way across lands, either public or private, by whomsoever owned, through which to carry water for domestic purposes, and necessarily embraces a municipal corporation seeking a right of way for such purposes. It covers every form in which water is used, domestic, irrigation, mining, and manufacturing, ... the kind of conduit employed and utilized is of no material moment . . . ."

Town of Lyons v. City of Longmont, 129 P. 198, 200 (Colo. 1913).

Comstock v. Ramsay

"We take judicial notice of the fact that practically every decree on the South Platte River, except possibly only the very early ones, is dependent for its supply, and for years and years has been, upon return, waste and seepage waters. This is the very thing which makes an enlarged use of the waters of our streams for irrigation possible. To now permit one who has never had or claimed a right upon or from the

river to come in, capture, divert and appropriate waters naturally tributary thereto, which are in fact nothing more or less than return and waste waters and upon which old decreed priorities have long depended for their supply, would be in effect to reverse the ancient doctrine, 'first in time first in right,' and to substitute in its stead, fortunately, as yet, an unrecognized one, '*last* in time first in right.'"
Comstock v. Ramsay, 133 P. 1107, 1110 (Colo. 1913).

Wyoming v. Colorado

"In suits between appropriators from the same stream, but in different states recognizing the doctrine of appropriation, the question whether rights under such appropriations should be judged by the rule of priority has been considered by several courts, state and federal, and has been uniformly answered in the affirmative."
Wyoming v. Colorado, 259 U.S. 419, 470 (1922).

Ft. Morgan Reservoir & Irrigation Co. v. McCune

"Under the statutes and decisions of this court, the water officials must distribute water according to the tabulated decrees; they have to do only with decreed priorities; with unappropriated waters they have no concern."
Ft. Morgan Reservoir & Irrigation Co. v. McCune, 206 P. 393 (Colo. 1922).

"So long as all the water is required to supply decreed priorities, said officials should permit no water to be diverted for new appropriations. Whenever there is a surplus of water, either from floods, or because of small demands therefor by appropriators, the officers have no right to interfere in the diversion of such surplus. All new appropriations must be made from surplus water, whether for storage or direct irrigation."
Id. at 394.

California Oregon Power Co. v. Beaver Portland Cement Co.

"What we hold is that following the act of 1877, if not before, 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."
California Oregon Power Co. v. Beaver Portland Cement Co., 295 U.S. 142, 163-64 (1935).

Hinderlider v. La Plata River & Cherry Creek Ditch Co.

"Whether the apportionment of the water of an interstate stream be made by compact between the upper and lower States with the consent of Congress or by a decree of this Court, the apportionment is binding upon the citizens of each State and all water claimants, even where the State had granted the water rights before it entered into the compact."

Hinderlider v. La Plata River & Cherry Creek Ditch Co., 304 U.S. 92, 106 (1938).

Safranek v. Town of Limon

"Under our Colorado law, it is the presumption that all ground water so situated finds its way to the stream in the watershed of which it lies, is tributary thereto, and subject to appropriation as part of the waters of the stream. The burden of proof is on one asserting that such ground water is not so tributary, to prove that fact by clear and satisfactory evidence."

Safranek v. Town of Limon, 228 P.2d 975, 977 (Colo. 1951) (citations omitted).

McCarran Amendment of 1952

"Consent is given to join the United States as a defendant in any suit (1) for the adjudication of rights to the use of water of a river system or other source, or (2) for the administration of such rights, where it appears that the United States is the owner of or is in the process of acquiring water rights by appropriation under State law, by purchase, by exchange, or otherwise, and the United States is a necessary party to such suit. The United States, when a party to any such suit, shall (1) be deemed to have waived any right to plead that the State laws are inapplicable or that the Untied States is not amenable thereto by reason of its sovereignty, and (2) shall be subject to the judgments, orders, and decrees of the court having jurisdiction, and may obtain review thereof, in the same manner and to the same extent as a private individual under like circumstances: *Provided*, That no judgment for costs shall be entered against the United States in any such suit."

McCarran Amendment of 1952, ch. 651, title II, § 208 (a)-(c), 66 Stat. 560 (1952) (current version at 43 U.S.C. § 666 (1994).

City and County of Denver v. Northern Colorado Water Conservancy Dist.

"[A]n appropriation is not complete until actual diversion and use, still, the right may relate back to the time when the first open step was taken giving notice of intent to secure it, (4) that right to relate back is conditional that construction thereafter was prosecuted with reasonable diligence, and conditional further that there was then 'a fixed and definite purpose to take it up and carry it through.'"

City and County of Denver v. Northern Colorado Water Conservancy Dist., 276 P.2d 992, 999 (1954) (citations omitted).

"The priority of a water right may not be dated back to the date of survey or filing of plat of a diversion proposal which has been abandoned in favor of another and very different plan."

Id. at 1001.

"The doctrine of relation back is a legal fiction in derogation of the constitution for the benefit of claimants under larger and more difficult projects and should be strictly construed."

Id.

Federal Power Comm'n v. Oregon

"There thus remains no question as to the constitutional and statutory authority of the Federal Power Commission to grant a valid license for a power project on reserved lands of the United States, provided that, as required by the Act, the use of the water does not conflict with vested rights of others."

Federal Power Comm'n v. Oregon, 349 U.S. 435, 444-45 (1955) (footnote omitted).

Colorado Springs v. Bender

"At his own point of diversion on a natural water course, each diverter must establish some reasonable means of effectuating his diversion. He is not entitled to command the whole or a substantial flow of the stream merely to facilitate his taking the fraction of the whole flow to which he is entitled. This principle applied to diversion of underflow or underground water means that priority of appropriation does not give a right to an inefficient means of diversion, such as a well which reaches to such a shallow depth into the available water supply that a shortage would occur to such senior even though diversion by others did not deplete the steam below, where there would be an adequate supply for the senior's lawful demand."

Colorado Springs v. Bender, 366 P.2d 552, 555 (Colo. 1961) (citation omitted).

"In determining the facts mentioned . . . the conditions surrounding the diversion by the senior appropriator must be examined as to whether he has created a means of diversion from the aquifer which is reasonably adequate for the use to which he has historically put the water of his appropriation. If adequate means for reaching a sufficient supply can be made available to the senior, whose present facilities for diversion fail when water table is lowered by acts of the junior appropriators, provision for such adequate means should be decreed at the expense of the junior appropriators, it being unreasonable to require the senior to supply such means out of his own financial resources."
Id. at 556.

Arizona v. California

"We agree with the Master that apportionment of the Lower Basin waters of the Colorado River is not controlled by the doctrine of equitable apportionment or by the Colorado River Compact. It is true that the Court has used the doctrine of equitable apportionment to decide river controversies between States. But in those cases Congress had not made any statutory apportionment. In this case, we have decided that Congress has provided its own method for allocating among the Lower Basin States the mainstream water to which they are entitled under the Compact. Where Congress has so exercised its constitutional power over waters, courts have no power to substitute their own notions of an 'equitable apportionment' for the apportionment chosen by Congress."
Arizona v. California, 373 U.S. 546, 565-66 (1963) (footnote omitted).

Colorado River Water Conservation Dist. v. Rocky Mountain Power Co.

"There is no support in the law of this state for the proposition that a minimum flow of water may be 'appropriated' in a natural stream for piscatorial purposes without diversion of any portion of the water 'appropriated' from the natural course of the stream."
Colorado River Water Conservation Dist. v. Rocky Mountain Power Co., 406 P.2d 798, 800 (Colo. 1965).

"[M]aintenance of the 'flow' of the stream is a riparian right and is completely inconsistent with the doctrine of prior appropriation."
Id.

Colorado Groundwater Management Act of 1965

"It is declared that the traditional policy of the state of Colorado, requiring the water resources of this state to be devoted to beneficial use in reasonable amounts through appropriation, is affirmed with respect to the designated ground waters of this state, as said waters are defined in section 37-90-103(6). While the doctrine of prior appropriation is recognized, such doctrine should be modified to permit the full economic development of designated ground water resources. Prior appropriations of ground water should be protected and reasonable ground water pumping levels maintained, but not to include the maintenance of historical water levels. All designated ground waters in this state are therefore declared to be subject to appropriation in the manner defined in this article."

COLO. REV. STAT. § 37-90-102(1) (1997).

Fellhauer v. People

"It is implicit in these constitutional provisions that, along with *vested rights*, there shall be *maximum utilization* of the water of this state. As administration of water approaches its second century the curtain is opening upon the new drama of *maximum utilization* and how constitutionally that doctrine can be integrated into the law of *vested rights*. We have known for a long time that the doctrine was lurking in the backstage shadows as a result of the accepted, though oft violated, principle that the right to water does not give the right to waste it."

Fellhauer v. People, 447 P.2d 986, 994 (Colo. 1968).

Water Right Determination and Administration Act of 1969

"It is hereby declared to be the policy of the state of Colorado that all water in or tributary to natural surface streams, not including nontributary ground water as that term is defined in section 37-90-103, originating in or flowing into this state have always been and are hereby declared to be the property of the public, dedicated to the use of the people of the state, subject to appropriation and use in accordance with sections 5 and 6 of article XVI of the state constitution and this article. As incident thereto, it is the policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all of the waters of this state."

COLO. REV. STAT. § 37-92-102(1)(a) (1997).

United States v. District Court *ex rel.* Eagle County

"[W]e do not read § 666(a)(2) [of the McCarran Amendment] as being restricted to appropriative rights acquired under state law . . . . (2) covers rights acquired by appropriation under state law and rights acquired 'by purchase' or 'by exchange', which we assume would normally be appropriative rights. But it also includes water rights which the United States has 'otherwise' acquired. The doctrine of *ejusdem generis* is invoked to maintain that 'or otherwise' does not encompass the adjudication of reserved water rights, which are in no way dependent for their creation or existence on state law. We reject that conclusion for we deal with an all-inclusive statute concerning the adjudication of rights to the use of water of a river system' which in §666(a)(1) has no exceptions and which, as we read it, includes appropriative rights, riparian rights, and reserved rights."

United States v. District Court *ex rel.* Eagle County, 401 U.S. 520, 524 (1971) (footnote omitted).

United States v. District Court for Water Div. No. 5

"It is pointed out that the new statute [1969 Colorado Adjudication Act] contemplates monthly proceedings before a water referee on water rights applications. These proceedings, it is argued, do not constitute general adjudications of water rights because all the water users and all water rights on a stream system are not involved in the referee's determinations. The only water rights considered in the proceeding are those for which an application has been filed within a particular month. It is also said that the Act makes all water rights confirmed under the new procedure junior to those previously awarded."

United States v. District Court for Water Div. No. 5, 401 U.S. 527, 529 (1971).

"The present suit, like the one in the *Eagle County* case, reaches all claims, perhaps month by month but inclusively in the totality; and, as we said in the other case, if there is a collision between prior adjudicated rights and reserved rights of the United States, the federal question can be preserved in the state decision and brought here for review."

Id. at 529-30.

City and County of Denver v. Fulton Irrigating Ditch Co.

"'[D]eveloped water' is that water which has been added to the supply of a natural stream and which never would have come into the stream had it not been for the efforts of the party producing it . . . . It follows

that the developers without hindrance could use, re-use, make successive use of and dispose of the water."

City and County of Denver v. Fulton Irrigating Ditch Co., 506 P.2d 144, 147 (Colo. 1972).

Federal Water Pollution Control Act

"The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

33 U.S.C. 1251(a) (1994 and Supp. 1995) (originally enacted June 30, 1948 as Act, ch. 758, 62 Stat. 1155).

Southeastern Colo. Water Conservancy Dist. v. Shelton Farms, Inc.

"'The planting and harvesting of trees to create water rights superior to the oldest decrees on the Arkansas would result in a harvest of pandemonium. Furthermore, one must be concerned that once all plant life disappears, the soil on the banks of the river will slip away, causing irreparable erosion.'

We are not unmindful that the statute speaks of the policy of maximum beneficial and integrated use of surface and subsurface water. But efficacious use does not mean uplifting one natural resource to the detriment of another. The waters of Colorado belong to the people, but so does the land. There must be a balancing effect, and the elements of water and land must be used in harmony to the maximum *feasible* use of both."

Southeastern Colo. Water Conservancy Dist. v. Shelton Farms, Inc., 529 P.2d 1321, 1327 (Colo. 1974).

Jacobucci v. District Court

"Mutual ditch companies in Colorado have been recognized as quasi-public carriers."

Jacobucci v. District Court, 541 P.2d 667, 671 (Colo. 1975).

"[T]he shares of stock . . . represent a definite and specific water right, as well as a corresponding interest in the ditch, canal, reservoir, and other works by which the water right is utilized."

Id. at 672.

"The condemnation action here in issue has the potential of seriously disrupting the shareholders' property interests. That the water rights owned by Farmers' shareholders are property rights is well established by Colorado law."
Id. at 675 (citations omitted).

"Their ability to protect those individualized interests would surely be impaired if this action were allowed to proceed in their absence."
Id.

Colorado River Water Conservation Dist. v. United States

"We conclude that the state court had jurisdiction over Indian water rights under the [McCarran] Amendment."
Colorado River Water Conservation Dist. v. United States, 424 U.S. 800, 809 (1976).

"The clear federal policy evinced by that legislation is the avoidance of piecemeal adjudication of water rights in a river system."
Id. at 819.

Federal Land Policy and Management Act of 1976

"The Congress declares that it is the policy of the United States that—(1) the public lands be retained in Federal ownership, unless as a result of the land use planning procedure provided for in the Act, it is determined that disposal of a particular parcel will serve the national interest . . . ."
43 U.S.C. § 1701(1) (1994).

California v. United States

"[E]xcept where the reserved rights or navigation servitude of the United States are invoked, the State has total authority over its internal waters."
California v. United States, 438 U.S. 645, 662 (1978).

United States v. New Mexico

"Each time this Court has applied the 'implied-reservation-of-water doctrine,' it has carefully examined both the asserted water right and the specific purposes for which the land was reserved, and concluded

that without the water the purposes of the reservation would be entirely defeated."

United States v. New Mexico, 438 U.S. 696, 700 (1978) (footnote omitted).

"This careful examination is required both because the reservation is implied, rather than expressed, and because of the history of congressional intent in the field of federal-state jurisdiction with respect to allocation of water. Where Congress has expressly addressed the question of whether federal entities must abide by state water law, it has almost invariably deferred to the state law. Where water is necessary to fulfill the very purposes for which a federal reservation was created, it is reasonable to conclude, even in the face of Congress' express deference to state water law in other areas, that the United States intended to reserve the necessary water. Where water is only valuable for a secondary use of the reservation, however, there arises the contrary inference that Congress intended, consistent with its other views, that the United States would acquire water in the same manner as any other public or private appropriator."

Id. at 701-02 (footnote and citations omitted).

"Not only is the Government's claim that Congress intended to reserve water for recreation and wildlife preservation inconsistent with Congress' failure to recognize these goals as purposes of the national forests, it would defeat the very purpose for which Congress did create the national forest system . . . . The water that would be 'insured' by preservation of the forest was to 'be used for domestic, mining, milling, or irrigation purposes, under the laws of the State wherein such national forests are situated, or under the laws of the United States and the rules and regulations established thereunder.' As this provision and its legislative history evidence, Congress authorized the national forest system principally as a means of enhancing the quantity of water that would be available to the settlers of the arid West. The government, however, would have us now believe that Congress intended to partially defeat this goal by reserving significant amounts of water for purposes quite inconsistent with this goal."

Id. at 711-13 (footnote and citations omitted).

Colorado River Water Conservation Dist. v. Vidler Tunnel Water Co.

"To initiate an appropriation, two elements—an intent and an act—must co-exist. First, the applicant must have an *intent* to take the water and put it to beneficial use. Secondly, the applicant must demonstrate this intent by an open physical act sufficient to constitute notice to third parties."

Colorado River Water Conservation Dist. v. Vidler Tunnel Water Co., 594 P.2d 566, 568 (Colo. 1979) (footnote and citation omitted).

"Our constitution guarantees a right to appropriate, not a right to speculate. The right to appropriate is for *use*, not merely for profit. As we read our constitution and statutes, they give no one the right to preempt the development potential of water for the anticipated future use of *others* not in privity of contract, or in any agency relationship, with the developer regarding that use. To recognize conditional decrees grounded on no interest beyond a desire to obtain water for sale would—as a practical matter—discourage those who have need and use for the water from developing it. Moreover, such a rule would encourage those with vast monetary resources to monopolize, for personal profit rather than for beneficial use, whatever unappropriated water remains."

Id.

Colorado River Water Conservation Dist. v. Colorado Water Conservation Board

"[I]t is obvious that the General Assembly in the enactment of S.B. 97 certainly did intend to have appropriations for piscatorial purposes without diversion.

We hold that under S.B. 97 the Colorado Water Board can make an in-stream appropriation without diversion in the conventional sense."

Colorado River Water Conservation Dist. v. Colorado Water Conservation Board, 594 P.2d 570, 574 (Colo. 1979).

"The legislative intent is quite clear that these appropriations are to protect and preserve the natural habitat and that the decrees confirming them award priorities which are superior to the rights of those who may later appropriate. Otherwise, upstream appropriations could later be made, the streams dried up, and the whole purpose of the legislation destroyed."

Id. at 575.

"The legislative objective to preserve reasonable portions of the natural environment in Colorado. Factual determinations regarding such questions as which areas are most amenable to preservation and what life forms are presently flourishing or capable of flourishing should be delegated to an administrative agency which may avail itself of expert scientific opinion."

Id. at 576.

People v. Emmert

"It is the general rule of property law recognized in Colorado that the land underlying non-navigable streams is the subject of private ownership and is vested in the proprietors of the adjoining lands."
People v. Emmert, 597 P.2d 1025, 1027 (1979).

"We recognize the various rationales employed by courts to allow public recreational use of water overlying privately owned beds, *i.e.,* (1) practical considerations employed in water right states such as Florida, Minnesota and Washington; (2) a public easement in recreation as an incident of navigation; (3) the creation of a public trust based on usability, thereby establishing only a limited private usufructary right; and (4) state constitutional basis for state ownership. We consider the common law rule of more force and effect, especially given its long-standing recognition in this state."
Id. at 1027.

"The interest at issue here, a riparian bed owner's exclusive use of water overlying his land, is distinguished from the right of appropriation. Constitutional provisions historically concerned with appropriation, therefore, should not be applied to subvert a riparian bed owner's common law right to the exclusive surface use of waters bounded by his lands. Without permission, the public cannot use such waters for recreation. If the increasing demand for recreational space on the waters of this state is to be accommodated, the legislative process is the proper method to achieve this end."
Id. at 1029 (citations omitted).

Weibert v. Rothe Bros.

"We have always recognized limitations on the right of the owner of a water right to divert at the full decreed rate at all times. The owner of a water right has no right as against a junior appropriator to waste water, *i.e.,* to divert more than can be used beneficially. Nor may he extend the time of diversion to enable him to irrigate lands in addition to those for which the water was appropriated. These limitations are read into every water right decree by implication."

"The right to change a point of diversion or type of use with respect to water rights decreed for irrigation purposes is limited to the 'duty of water' with respect to the decreed place of use."
Weibert v. Rothe Bros., 618 P.2d 1367, 1371 (1980) (citations omitted).

"The right to change a point of diversion or place of use is also limited in quantity and time by historical use . . . . 'Historical use' as a limitation on the right to change a point of diversion has been considered to be an application of the principle that junior appropriators have vested rights in the continuation of stream conditions as they existed at the time of their respective appropriations."
Id. at 1371-72 (citations omitted).

"A plan for augmentation is to be approved by the water judge based on the same criterion involved in evaluating an application for change of water right . . . ."
Id at 1373.

"In order to determine the adequacy of the plan to accomplish its intended purpose, it is necessary to consider the adequacy of the replacement water rights."
Id.

Danielson v. Vickroy

"The Colorado Ground Water Management Act . . . was enacted in 1965 to establish a procedure for appropriation of designated ground water and for devoting it to beneficial use. It was designed to permit the full economic development of designated ground water resources. Designated ground water, the definition of which is considered in more detail later, includes water not tributary to any stream, and other water not available for the fulfillment of decreed surface rights."
Danielson v. Vickroy, 627 P.2d 752, 756 (Colo. 1981) (citations omitted).

"The Management Act creates a Ground Water Commission . . . which has authority to determine designated ground water basins . . . ."
Id.

Fort Lyon Canal Company v. Catlin Canal Company

"The concept that the rights incident to water right ownership can be modified by private agreement is not novel."
Fort Lyon Canal Company v. Catlin Canal Company, 642 P.2d 501, 506 (Colo. 1982).

"[A] mutual ditch company bylaw imposing reasonable limitations, additional to those contained in section 37-92-305, C.R.S. 1973, upon the right of a stockholder to obtain a change in the point of diversion can be enforced."
Id. at 508.

"We find no reason in public policy to deny the directors, pursuant to bylaw authorization, the right to review a proposed change of place of delivery to assure that it does not create the injury upon which the bylaw focuses."

Id. at 509 (footnote omitted).

Navajo Development Co. v. Sanderson

"Federal reserved water rights, by their nature, exist from the time that the legislative or executive action created the federal enclave to which the water right attaches. If Congress or the President wish to obtain more water for the federal lands after the initial reservations, they must use the state appropriation machinery or condemn the desired water."

Navajo Development Co. v. Sanderson, 655 P.2d 1374, 1379 (Colo. 1982) (citations omitted).

"Federal reserved water rights must be understood as a doctrine which places a federal appropriator within the state appropriation scheme by operation of federal law."

Id.

"A grantor cannot warrant that it will snow or rain, or that all senior appropriators will not withdraw their share of water. The value of a water right is its priority and the expectations which that right provides."

Id. at 1380.

United States v. City and County of Denver

"The power of the United States to legislate a federal system for the use and disposition of unappropriated non-navigable waters on federal lands generally, and on reserved lands specifically, is derived from the Property Clause of the United States Constitution."

United States v. City and County of Denver, 656 P.2d 1, 17 (Colo. 1982) (footnote omitted).

"[T]he existence of a federal reservation does not in and of itself denote a reservation of water. Rather, there must be a determination of the precise federal purpose to be served, a determination that the purpose would be frustrated without water, and a determination of the minimum quantity of water required to fulfill the purpose."

Id. at 18.

"For each federal claim of a reserved water right, the trier of fact must examine the documents reserving the land form the public domain and the underlying legislation authorizing the reservation; determine the precise federal purposes to be served by such legislation; determine whether water is essential for the primary purposes of the reservation; and finally determine the precise quantity of water—the minimal need . . . required for such purposes."
Id. at 20.

"Thus, any water in excess of that needed to fulfill the purposes of the national forests was made available by congress to subsequent private appropriators."
Id. at 22.

"We conclude that MUSYA [Multiple Use Sustained Yield Act] does not reserve additional water for outdoor recreation, wildlife, or fish purposes. We believe that Congress intended that the federal government proceed under state law in the same manner as any other public or private appropriator."
Id. at 27.

Public Trust – California
National Audubon Soc'y v. Superior Court of Alpine County

"This case brings together for the first time two systems of legal thought: the appropriative water rights system which since the days of the gold rush has dominated California water law, and the public trust doctrine which, after evolving as a shield for the protection of tidelands, now extends its protective scope to navigable lakes. Ever since we first recognized that the public trust protects environmental and recreational values . . . . the two systems of legal thought have been on a collision course."
National Audubon Soc'y v. Superior Court of Alpine County, 658 P.2d 709, 712 (Cal. 1983).

"In our opinion, the core of the public trust doctrine is the state's authority as sovereign to exercise a continuous supervision and control over the navigable waters of the state and the lands underlying those waters."
Id. at 712.

"Once the state has approved an appropriation, the public trust imposes a duty of continuing supervision over the taking and use of the appropriated water. In exercising its sovereign power to allocate water resources in the public interest, the state is not confined by past

allocation decisions which may be incorrect in light of current knowledge or inconsistent with current needs."

"The state accordingly has the power to reconsider allocation decisions even though those decisions were made after due consideration of their effect on the public trust."

Id. at 728 (footnote omitted).

Alamosa La Jara Water Users Protection Ass'n v. Gould

"We note that the policy of maximum utilization does not require a single-minded endeavor to squeeze every drop of water from the valley's aquifers. Section 37-92-501(2)(e) makes clear that the objective of 'maximum use' administration is 'optimum use.' Optimum use can only be achieved with proper regard for all significant factors, including environmental and economic concerns."

Alamosa La Jara Water Users Protection Ass'n v. Gould, 674 P.2d 914, 935 (Colo. 1983) (footnote omitted).

Colorado v. Southwestern Colo. Water Conservation District

"[W]e believe that, given the state's plenary control over development of water law, the traditional property concept of fee ownership is of limited usefulness as applied to nontributary ground water and serves to mislead rather than to advance understanding in considering public and private rights to utilization of this unique resource."

State v. Southwestern Colo. Water Conservation District, 671 P.2d 1294, 1316 (Colo. 1983).

"Nontributary ground water is not subject to appropriation under *Colo. Cons.* Art. XVI, §§ 5 and 6, or to adjudication or administration under the 1969 Act. The modified doctrine of prior appropriation provided for the 1965 Act applies to nontributary ground water, and rights to such water in designated ground water basins must be obtained through the procedures established in that Act."

Id. at 1319.

"In light of the flexible approach taken in the case law toward application of the 'beneficial use' concept, and given the legislative expressions of concern for reclamation of mined land and abatement of dust pollution, we believe that land reclamation and dust control are beneficial uses."

Id. at 1322.

Great Western Sugar Co. v. Jackson Lake Reservoir and Irrigation Co.

"Absent some express exception, a shareholder of stock in a mutual ditch company is entitled to a ratable portion of the water obtained by exercise of the company's water rights."
Great Western Sugar Co. v. Jackson Lake Reservoir and Irrigation Co., 681 P.2d 484, 490 (Colo. 1984).

"The right of a shareholder of a mutual ditch company to change its water rights is limited by the requirement that such change not injure others who possess vested water rights."
Id. at 493.

Masters Investment Co., Inc. v. Irrigationists Ass'n.

"In Colorado, the issue of whether a water right has been abandoned invariably turns on the question of whether the owner of the right intended to abandon the right."
Masters Investment Co., Inc. v. Irrigationists Ass'n., 702 P.2d 268, 271 (Colo. 1985).

"Evidence of an unreasonably long period of non-use is sufficient to create a presumption of the owner's intent to abandon, requiring the owner to produce some evidence supporting the argument that the owner did not intend to abandon the water right."
Id. at 272.

Riverside Irrigation Dist. v. Andrews

"Plaintiffs argue that, even if the Corps can consider effects of changes in water quantity, it can do so only when the change is a direct effect of the discharge. In the present case, the depletion of water is an indirect effect of the discharge, in that it results from the increased consumptive use of water facilitated by the discharge. However, the Corps is required, under both the Clean Water Act and the Endangered Species Act, to consider the environmental impact of the discharge that it is authorizing. To require it to ignore the indirect effects that result from its actions would be to require it to wear blinders that Congress has not chosen to impose. The fact that the reduction in water does not result 'from direct federal action does not lessen the appellee's duty under § 7 [of the Endangered Species Act].' The relevant consideration is the total impact of the discharge on the crane."
Riverside Irrigation Dist. v. Andrews, 758 F. 2d 508, 512 (1985) (citations omitted).

"The Wallop Amendment does, however, indicate 'that Congress did not want to interfere any more than necessary with state water management.' A fair reading of the statute as a whole makes clear that, where both the state's interest in allocating water and the federal government's interest in protecting the environment are implicated, Congress intended an accommodation. Such accommodations are best reached in the individual permit process.

We need not reach the question raised by plaintiffs of whether Congress can unilaterally abrogate an interstate compact. The action by the Corps has not denied Colorado its right to water use under the South Platte River Compact."

Id. at 513-14 (citation omitted).

United States v. Bell

"The resume notice provision of the Act, § 37-92-302(3), 15 C.R.S. (1973 & 1985 Supp.), requires the water clerk to prepare a resume of all applications in the water division filed during the preceding month, to publish the resume in newspapers of general circulation, and to mail a copy of the resume to persons who will be affected or to those who have requested resumes."

United States v. Bell, 724 P.2d 631, 636 (Colo. 1986).

"Under Colorado law, vested appropriative water rights are subject to the postponement doctrine set out in section 37-92-306, 15 C.R.S. (1973). Priority of appropriation determines the relative priority among water rights or conditional water rights awarded in one calendar year, but, regardless of the date of appropriation, water rights or conditional water rights decreed in one year are necessarily junior to all priorities awarded in decrees in prior years. § 37-92-306. Water rights are obtained by a combination of acts and intent constituting appropriation and are not dependent upon adjudication. [B]ut failure to adjudicate the rights results in the rights being junior to rights previously adjudicated . . . . The priority of unadjudicated water rights, relative to previously adjudicated water rights, is therefore 'postponed.'

Because the United States was not subject to joinder prior to the McCarran Amendment and its absence from previous adjudications was privileged, once it is properly joined and provided the opportunity to adjudicate its claims, it may be decreed reserved water rights with priorities that antedate other adjudicated water rights to the date of the reservation. To that extent the postponement doctrine does not prevent the United States from receiving the priorities to which it would otherwise have been entitled. However, the postponement doctrine does apply to the United States' amendment claiming water from the mainstem of the Colorado River. Were the amendment to relate back to the original application, and thus antedate prior claims, the

purposes of the McCarran Amendment would be frustrated, and the United States would have avoided the equivalent of a filing deadline."
Id. at 641-42 (footnotes and citations omitted).

FWS Land and Cattle Co. v. State Div. of Wildlife

"[F]ollowing the enactment of section 37-92-305(9)(b), an applicant seeking a conditional decree must prove by a preponderance of the evidence that the appropriation will be completed with diligence before a conditional decree may be issued."
FWS Land and Cattle Co. v. State Div. of Wildlife, 795 P.2d 837, 840 (Colo. 1990).

"FWS must be able to establish that water 'can and will be diverted, stored, or otherwise captured, possessed, and controlled . . . and that the project can and will be completed with diligence and within a reasonable time.' The ownership of and an applicant's right of access to a reservoir site are appropriate elements to be considered in the determination of whether a storage project will be completed. In granting DOW's motion for summary judgment, the water court properly considered FWS's ability to use the state lands for increased storage purposes."
Id.

City of Thornton v. City of Fort Collins

"To establish the date of the appropriation, the applicant must show the 'concurrence of the intent to appropriate water for application to beneficial use with an overt manifestation of that intent through physical acts sufficient to constitute notice to third parties.' The concurrence of intent and overt acts qualifies as the first step toward an appropriation of water, and the date on which the first step is taken determines the date of the appropriation."
City of Thornton v. City of Fort Collins, 830 P.2d 915, 924-25 (Colo. 1992) (citation omitted).

"The relevant acts 'must be of such character as to perform three functions . . . .' The three required functions are: '(1) to manifest the necessary intent to appropriate water to beneficial use; (2) to demonstrate the taking of a substantial step toward the application of water to beneficial use; and (3) to constitute notice to interested parties of the nature and extent of the proposed demand upon the water supply.'"
Id. at 925.

"[T]he appropriation date cannot be set before the latest date in that series, which is the date on which it can be said that the first step has been taken to appropriate water."
Id. at 925.

"Water can be appropriated either by diverting water or by otherwise controlling water. An application for a conditional water right may be adjudicated if either diversion of water or control of water is established, assuming that the resultant use is beneficial. A diversion in the conventional sense is not required."
Id. at 929.

"This statute [37-92-103(4)] provides that water appropriated for municipal, recreation, piscatorial, fishery and wildlife purposes is water put to beneficial uses."
Id. at 930.

"The type of beneficial use to which the controlled water is put may mean that the water must remain in its natural course. This is not an appropriation of a minimum stream flow, an appropriation given exclusively to the CWCB. A minimum stream flow does not require removal or control of water by some structure or device. A minimum stream flow between two points on a stream or river usually signifies the complete absence of a structure or device."
Id. at 931.

"[I]t is clear that the Nature Dam is a structure which either removes water from its natural course or location or controls water within its natural course or location given that the Poudre's 'historic' channel may be considered the River's natural course or location. The uses of the Poudre River water so controlled are recreational, piscatorial and wildlife uses, all valid under the Act."
Id.

"In general, boat chutes and fish ladders, when properly designed and constructed, are structures which concentrate the flow of water to serve their intended purposes. A chute or ladder therefore may qualify as a 'structure or device' which controls water in its natural course or location under section 37-92-103(7)."
Id. at 932.

Board of County Comm'rs of the County of Arapahoe v. Upper Gunnison River Water Conservancy Dist.

"As we have previously determined, the provisions of the 1975 contract demonstrate the District's control over the application of refill water in

the Taylor Park Reservoir to further fishery and recreational beneficial uses. The contract authorizes the District to request the Association to release refill water from the Taylor Park Reservoir, with the approval of the United States, and to participate in supervising and coordinating exchanges of water between the Aspinall Unit and the Taylor Park Reservoir. It is undisputed that refill water was in fact released from the Taylor Park Reservoir."

Board of County Comm'rs of the County of Arapahoe v. Upper Gunnison River Water Conservancy Dist, 838 P.2d 840, 849 (Colo. 1992).

"The evidence also supports the water court's finding that these releases resulted in the following specific benefits, with no injury to any downstream junior appropriations: easing headgate management by downstream irrigators; aiding fisheries by avoiding disruption of spawn and fry life stages and maintaining constant flows within an optimum range for all life stages; reducing flooding to the benefit of landowners; enhancing recreation uses by providing more predictable river and boating flows; and minimizing reservoir spills."

Id. at 849-50.

Board of County Comm'rs of the County of Arapahoe v. United States

"A conditional water right decree does not reflect actual water usage. The extent to which a conditional decree will be perfected cannot be predicted with certainty and depends upon the completion of the requirements necessary to appropriate and put the water to a beneficial use."

Board of County Comm'rs of the County of Arapahoe v. United States, 891 P.2d 952, 970 (Colo. 1995).

"The water court's interpretation of the 'can and will' statute prohibits future appropriations based on unrealistically high assumptions of water utilization by holders of absolute and senior conditional water rights decrees."

Id.

"Although a conditional water rights decree may affect the calculation of the availability of water when the rights are exercised, it is difficult to predict whether, and to what extent, the appropriation will be completed. Rather than speculate about the extent to which conditional rights will be exercised, and without the assumption that conditional rights will be exercised to the decreed amount, river conditions existing at the time of the application for a conditional water rights decree should be considered to determine water availability. Present conditions provide a more accurate representation of what water is being beneficially used and what water is available for appropriations. Conditional water rights under which diversions have not been made

or none are being made should not be considered in determining water availability."
Id. at 970-71.

"We have consistently recognized that the General Assembly has acted to preserve the natural environment by giving authority to the Colorado Water Conservation Board to appropriate water to maintain the natural environment, and we will not intrude into an area where legislative prerogative governs. The degree of protection afforded the environment and the mechanism to address state appropriation of water for the good of the public is the province of the General Assembly and the electorate."
Id. at 972.

Kansas v. Colorado

"Article IV-D of the Compact permits future development and construction along the Arkansas river Basin provided that it does not materially deplete stateline flows 'in *usable* quantity or availability.'"
Kansas v. Colorado, 514 U.S. 673, 684-85 (1995).

"[I]improved and increased pumping by existing wells clearly falls within Article IV-D's prohibition against 'improved or prolonged functioning of existing works,' if such action results in 'materia[l] deplet[ions] in usable' river flows."
Id. at 690.

Simpson v. Highland Irrigation Company

"[T]he Engineer can and should enforce compact delivery requirements with regard to Colorado water rights, adhering to the terms of the Compact and consistent, insofar as possible, with Colorado constitutional and statutory provisions for priority administration. In this manner, citizens of Colorado can partake reliably of the state's compact apportionment through property rights perfected for beneficial use within the state."
Simpson v. Highland Irrigation Company, 917 P.2d 1242, 1248 (1996) (citation omitted).

"Colorado law favors efficient water management, optimum use, and priority administration."
Id. at 1252 (footnote omitted).

"Its priority is the essential element of a Colorado water right. Under the decreed, priority, the owner or beneficiary of a water right is entitled to effectuate capture, possession, and control of a specified quantity of water from the physically available, decreed source of supply at an identified point of diversion for application to beneficial use to the exclusion of all other uses not then operating in decreed priority."

Id. at 1252 n.17.

"Security for the rights of Colorado water users largely depends upon the sound exercise of the Engineer's diversion curtailment enforcement power."

Id. at 1253.

Colorado Ground Water Comm'n v. Eagle Peak Farms, Ltd.

"The [1965 Ground Water Management] Act creates a permitting system for the allocation and use of ground waters within designated ground water basins. The Commission is empowered to act on conditional and final well permit applications, changes of water rights to designated ground water . . . and to 'supervise and control the exercise and administration of all rights acquired to the use of designated ground water.'"

Colorado Ground Water Comm'n v. Eagle Peak Farms, Ltd., 919 P.2d 212, 215 (Colo. 1996).

"Here, the ground water judge for Adams County recognized that APA rulemaking review in the Denver District Court would 'provide for uniformity in review of rules in one central authority rather than providing for the balkanization of decision making.' The ground water judge correctly interpreted the Act and the APA. The 'acts' and 'decisions' of the Commission referenced in section 37-90-115 are nonrulemaking in nature, such as those involving the application of statutes or rules to specific well permit applications, water rights, change of water rights, or other matters focusing on particular water users in specific circumstances."

Id. at 220-21 (citation omitted).

Bayou Land Co. v. Talley

"[I]t is clear that the legislature intended from its enactment of Senate Bill 213 and later Senate Bill 5 to confer control over nontributary ground water to owners of the overlying land. The legislature has done so by making ownership of land or consent of the landowner a prerequisite to application for a well permit and ultimately to the utili-

zation of ground water. Through these enactments, the legislature has created an inchoate right to control and use a specified amount of nontributary ground water in owners of the overlying land.

Because this right is incident to ownership of land, it is not dependent upon formal adjudication by a water court. For instance, the right to withdraw nontributary ground water may be severed from the land prior to adjudication through the consent provisions of section 37-90-137(4) or by sale."

Bayou Land Co. v. Talley, 924 P.2d 136, 148-49 (Colo. 1996) (citations omitted).

"We describe the right to extract nontributary ground water prior to construction of a well and/or adjudication as inchoate to emphasize that it is not a vested right. The right does not vest until the landowner or an individual with the landowner's consent constructs a well in accordance with a well permit from the state engineer and/or applies for and receives water court adjudication. Until vesting occurs, the right to extract nontributary ground water is subject to legislative modification or termination."

Id. at 149 (footnote and citations omitted).

"We conclude that because the right to withdraw nontributary ground water is integrally associated with and incident to ownership of land, such right is presumed to pass with the land either in a deed or a deed of trust unless explicitly excepted from the conveyance instrument. A party claiming that the right to withdraw nontributary ground water was not transferred with the land must prove that the grantor affirmatively did not intend to transfer such right."

Id. at 150.

"The presumption may be overcome by a showing that the landowner previously transferred the right to withdraw ground water to a third party or entity explicitly or by operation of statute. *See* 37-90-137(4)(b)(II), 15 C.R.S. (1995 Supp.)."

Id. at 151 n.23.

City of Thornton v. Bijou Irrigation Co.

"We have applied the inquiry notice standard in a number of recent cases. With the exception of cases presenting circumstances that suggested the misleading inclusion or omission of material facts, we have consistently accepted a broad definition of inquiry notice and found adequate the resume notice provided by the applicant."

City of Thornton v. Bijou Irrigation Co., 926 P.2d 1, 26 (Colo. 1996).

"In *Department of Natural Resources v. Ogburn*, we determined that jurisdiction over a change of transmountain water rights rested with the water courts in both the basin of origin and the basin of use. However, we noted that the appropriate venue for determination of the requested change of use is the court in the basin of use."
Id. at 30 (citation omitted).

"[U]nder section 37-92-103(3)(a), a municipality may be decreed conditional water rights based solely on its projected future needs, and without firm contractual commitments or agency relationships, but a municipality's entitlement to such a decree is subject to the water court's determination that the amount conditionally appropriated is consistent with the municipality's reasonably anticipated requirements based on substantiated projection of future growth."
Id. at 39 (footnote omitted).

"[T]he 'can and will' requirement should not be applied rigidly to prevent beneficial uses where an applicant otherwise satisfies the legal standard of establishing a nonspeculative intent to appropriate for a beneficial use."
Id. at 43 (footnote omitted).

"[I]t is within the water court's authority to include conditions in the decree that limit the yield of the rights to the amount for which water is available and for which the applicant has established a need and a future intent and ability to use."
Id. at 47.

"[T]he court's setting of a project yield limit below established need and availability could be valid if necessary to protect other water users against injury to their existing rights."
Id. at 48.

"Thornton's proposals violate both the spirit of the WCA and the Repayment Contract and the letter of the NCWCD rules and the Allotment Contract. Thornton's proposal to use CBT water to satisfy replacement obligations will allow the city to increase the amount of water that it applies to municipal uses outside the boundaries of NCWCD. Although the direct use remains within the district, Thornton would receive indirect benefits outside of the district that derive from its use of CBT water within the district. Similarly, the operation of the exchange on CBT water, even if the character of exchange rule applies and the direct use is deemed to occur within the district, results in significant quality and quantity benefits to Thornton outside of the NCWCD boundaries. Furthermore, Rule IV(A) of the NCWCD rules and Article 2 of the Allotment Contract specifically preclude the acquisition of extra-district benefits by exchange. The trial court correctly assessed Thornton's proposals as attempts to extend benefits to

its lands outside of the district in contravention of the provisions of the governing statutes, rules, and contracts."
Id. at 59 (footnotes omitted).

"A contract water user is, in effect, a consumer whose rights are determined by the terms of that contract, and successors in interest can acquire no greater right."
Id. at 60.

"Appropriators of water native to a public stream have no automatic right to capture and reuse this water after the initial application to beneficial use. Instead, these return flows and seepage waters become water tributary to a natural stream and subject to diversion and use under the appropriations and associated system of priorities existing on the stream. Thus, a user of native water can secure a right to reuse return flows only by establishing the elements necessary to complete an independent appropriation of those waters."
Id. at 65.

"[W]e conclude that an importer of transmountain water need not have an intent to reuse this water at the time of the original appropriation and importation to maintain the subsequent right of reuse."
Id. at 70.

"The reuse right remains with the importer until the right is transferred by the importer or the importation ceases."
Id.

"[W]e have consistently maintained that appropriators on a stream have no vested right to a continuance of importation of foreign water which another has brought to the watershed."
Id. at 72.

"[L]aches is not applicable to a party who has no duty to act."
Id. at 74.

"We noted above that it has long been the rule in Colorado that downstream users cannot establish vested rights in the continuation of the importation of foreign water. In light of this rule, Fort Collins and the other downstream users were not justified in relying on the continued release of these foreign water return flows. Because their reliance was unreasonable, the downstream users cannot establish the requisite prejudice attributable to WSSC's alleged delayed initiation of its reuse right. Thus, we hold that Thornton's proposed reuse of its foreign water is not barred by the doctrine of laches."
Id. (citation omitted).

"One of the basic tenets of Colorado water law is that junior appropriators are entitled to maintenance of the conditions on the stream existing at the time of their respective appropriations . . . . This protection extends not only to surface water users but to users of all water tributary to a natural stream, including appropriators of tributary underground water . . . . [T]his protection extends to junior appropriators' rights in return flows . . . ."
Id. at 80.

"Thus, unlike water imported from across the Continental Divide, Thornton's irrigation water is not new to the system; Thornton essentially changed only the place of use of that water. This type of diversion is common in Colorado and users downstream from these diversions have every reason to believe that they are among those protected against injury."
Id. at 81.

"Senator McCormick's statements reveal a recognition that a water court has acted properly in imposing revegetation requirements prior to the consideration and passage of Senate Bill 92-92. The bill was intended to codify and institutionalize the use of these revegetation conditions and did not represent the creation of a new form of condition on changes in use of water rights."
Id. at 85.

"In addition to this dual focus on maximum beneficial use and the protection of water rights, water judges must give consideration to the potential impact of the utilization of water on other resources. Our decisions establish that the goal of maximum utilization must be 'implemented so as to ensure that water resources are utilized in harmony with the protection of other valuable state resources.'"
Id. at 86.

"[W]e agree with the trial court that the legislative water quality scheme is not designed to protect against quality impacts unrelated to discharges or substitute water and specifically prohibits the water court from imposing the protective measures necessary to remedy depletive impacts of upstream appropriations on an appropriator in Kodak's situation."
Id. at 93.

"The sole negative impact of the Poudre River exchange on Kodak's treatment operations results from a diminution in the flow of excess river water—*i.e.*, water that would otherwise flow by Kodak's plant but that is in excess of the amount that can be diverted under Kodak's water right . . . . [T]o avoid this impact on Kodak's treatment operations, the trial court would have had to impose conditions that required maintenance of sufficient volume in the stream to preserve the average

low-flow values that determine Kodak's effluent limits. Despite Kodak's arguments to the contrary, such protection would necessarily require the imposition of conditions creating a private instream flow right for Kodak for the purpose of waste dilution or assimilation."
Id.

"Pursuant to section 37-92-102(3), 15 C.R.S. (1990), the General Assembly vested exclusive authority in a state entity, the Colorado Water Conservation Board (CWCB) to appropriate minimum stream flows and limited the purpose for these appropriations to 'preserv[ation of] the environment to a reasonable degree.'
Id. at 93.

"[T]he judiciary is without authority to decree an instream flow right to a private entity . . . . "The legislature similarly prohibited the Colorado Water Quality Commission and the Water Quality Division from imposing minimum instream flows in the course of their water quality protection activities. These agencies must perform their duties subject to the following restriction: 'Nothing in this article shall be construed to allow the commission or the division to require minimum stream flows . . . .' § 25-8-104(1), 11A C.R.S. (1989). This language reinforces the legislative intent expressed in the water right adjudication provisions that minimum stream flows are not a valid tool for protecting water quality."
Id.(citations omitted).

"The decision whether further to integrate the consideration and administration of water quality concerns into the prior appropriation system is the province of the General Assembly or the electorate."
Id. at 94-95.

"Under both the statute and the regulations, the mandate of the state engineer in reviewing the quality aspects of an exchange is clear: the substitute supply must be of a quality to meet the requirements of use to which the senior appropriation has normally been put. The regulations are sufficiently broad to allow the state engineer's office to exercise its professional judgment in adopting a method of regulation that will ensure that the statutory standard is met, and the absence of more specific direction will not compromise the protective goals of the statute. Accordingly, we hold that the state engineer is capable of ensuring compliance with these provisions without specific instructions on where to measure the quality of the substituted water . . . . If water quality monitoring at the point of discharge is insufficient to ensure compliance with section 37-80-120(3), the decree does not prevent the state engineer's office from taking additional action to fulfill its statutory duty to protect downstream users."
Id. at 97.

"The state engineer and division engineer are legislatively assigned broad powers and responsibilities for administration, distribution, and regulation of waters of the state. We have discovered no statutory authority that would authorize a court to impose on a private party any part of the expense incident to exercise of those powers or fulfillment of those responsibilities."
Id. at 99 (citation omitted).

The City and County of Denver v. Middle Park Water Conservancy Dist.

"Intent is the critical element in determining abandonment. Continued and unexplained non-use of a water right for an unreasonable period of time creates a rebuttable presumption of intent to abandon."
The City and County of Denver v. Middle Park Water Conservancy Dist., 925 P.2d 283, 286 (Colo. 1996) (citations omitted).

"Water rights are usufructary in nature, and the use entitlement may be lost or retired to the stream. When this occurs, the property rights adhering to the particular water right no longer exist. The effect of such abandonment on any other water right diverting from the same source of supply is not the subject of the abandonment inquiry."
Id. (citations omitted).

Bennett Bear Creek Farm Water and Sanitation Dist. v. City and County of Denver

"The legislature chose not to confer extraterritorial water service rate-setting authority on the PUC. Section 31-35-402(1)(f) has displaced the common law and the PUC in regard to rate making for extraterritorial water service. Rate setting under section 31-35-402(1)(f) is legislative in nature."
Bennett Bear Creek Farm Water and Sanitation District v. City and County of Denver, 928 P.2d 1254, 1262 (Colo. 1996) (footnote omitted).

"Contracts containing terms regarding rates and charges must be construed and given effect in light of the legislative authority of the governmental entity which supplies the water service."
Id.

"[O]ur inquiry regarding the applicable standard must be informed by rules, statutes, and case law pertinent to judicial review of local governmental legislative action. Such review occurs by means of declaratory judgment under C.R.C.P. 57 and sections 13-51-101 to -115, 6A C.R.S. (1987), not by way of on-the-record review under the State Ad-

ministrative Procedure Act, § 24-4-106, 10 A.C.R.S. (1988), or C.R.C.P. (106)(a)(4)."
Id. at 1268.

"Rates that are not rationally related to a local governmental utility purpose are subject to being set aside if those challenging the rate carry their burden of proving lack of such a relationship."
Id. at 1269.

"Contracts of a governmental entity cannot divest its legislative powers, and contracting parties are charged with knowledge of the retained nature of such authority."
Id. at 1269-70.

"Legitimate utility factors, and the justified use of governmental power, must be the basis for decisionmaking, and a judicial remedy is available by way of declaratory judgment action to redress rate-making actions which lack a rational relationship to the utility function of the governmental entity."
Id. at 1273.

Aspen Wilderness Workshop, Inc. v. Hines Highlands Limited Partnership

"Under the can and will statute, the applicant must make a threshold showing of reasonable availability of water to prove that the applicant "can" complete the appropriation. The applicant for water rights must demonstrate that 'water is available based upon river conditions existing at the time of the application, in priority, in sufficient quantities and on sufficiently frequent occasions, to enable the applicant to complete the appropriation with diligence and within a reasonable time.'

A showing of reasonable availability does not require a demonstration that water will always be available to the full extent applied for in the decree. The applicant need only prove that there is a substantial probability that the appropriation can and will be completed, based upon necessarily imperfect prediction of future conditions."
Aspen Wilderness Workshop, Inc. v. Hines Highlands Limited Partnership, 929 P.2d 718, 723-24 (Colo. 1996) (footnotes and citation omitted).

"Any potential injury caused by new appropriations from streams that are not over-appropriated can normally be mitigated if junior appropriators curtail their diversions when senior users need water."
Id. at 724.

"We recognize that there may be situations in which any use by a junior appropriator would cause persistent injury to senior water users. In those cases, the water court must eliminate the injury by imposing conditions on the exercise of the junior right. The water court may require the applicant to provide augmentation water to protect against injury to senior users."
Id. (citation omitted).

"Whether the proposed appropriation can and will be completed is a question of fact for the water court to determine. The issues of water availability and injurious effect are inherently fact specific and thus require factual findings by the water court. The water court's findings will not be disturbed on appeal if they are supported by competent evidence in the record."
Id. at 725 (citation omitted).

"[A] public interest argument is not a valid objection to a decree for a new conditional water right because such an argument conflicts with the doctrine of prior appropriation. Second, such an argument presupposes that the existing rights will not be administered fairly and in compliance with the priority system."
Id. (citation omitted).

"[T]o the extent the appellants argue injury to the CWCB's decreed instream flow rights, we note that the CWCB was an objector in the case. The CWCB holds the decreed instream flow right."
Id. at 726.

"Therefore, the argument of injury to the instream flow is much less persuasive when the holder of that right was a party to this action, satisfied itself that its interests were being protected, and did not oppose entry of the decree."
Id.

Dallas Creek Water Co. v. Huey

"An absolute decree confirms that amount of depletion from the stream that can be taken in priority as a property right."
Dallas Creek Water Co. v. Huey, 933 P.2d 27, 34 (Colo. 1997).

"Since conditional water rights function to reserve a priority date for an appropriation of water to beneficial use that has not been achieved yet, they are subject to continued scrutiny to prevent the

hoarding of priorities 'to the detriment of those seeking to apply the state's water beneficially.'"
Id. at 35.

"The above-emphasized reference to diligence in the statutory provisions governing conditional water rights plainly indicates legislative intent to require, in subsequent diligence proceedings, a demonstration that the decreed conditional appropriation is being pursued in a manner which affirms that capture, possession, control and beneficial use of water can and will occur in the state, thereby justifying continued reservation of the antedated priority pending perfection of a water right."
Id. at 37 (footnote omitted).

"Its priority, location of diversion at the source of supply, and amount of water for application to beneficial uses are the essential elements of the water right."
Id. at 38.

"Water rights are decreed to structures and points of diversion, in recognition that a water right is a right of use and constitutes real property in this state, and the owners and users of such water rights may change from time to time."
Id. at 39 (citation omitted).

"Water application requirements should not be construed to defeat substitution of parties when a water user who depends upon the appropriation at issue has, in fact, filed a timely diligence application through an agent and the resume notice sufficiently describes the right for which diligence is sought."
Id. at 41.

"A person desiring to pursue the conditional decreed appropriation to completion must show that the preferential status enjoyed for the initial appropriation is entitled to continuation under the antedated priority. This is accomplished by a demonstration of due diligence by an owner or lawful user of the conditionally decreed appropriation."
Id. at 42.

Shirola v. Turkey Canon Ranch Ltd. Liab. Co.

"Therefore, in a water adjudication involving a proposed plan for augmentation or a change of water right, any person may object to the application itself and participate in the adjudication by holding the applicant to a standard of strict proof. However, for that objector to have standing to assert injury to his or her water right, the objector

must show that he or she has a *legally protected interest in a vested water right* or a conditional decree."

Shirola v. Turkey Canon Ranch Ltd. Liab. Co., 937 P.2d 739, 747 (Colo. 1997) (footnote omitted).

"Absent an adjudication under the Act, water rights are generally incapable of being enforced. Once a water right has been adjudicated, it receives a legally vested priority date that entitles the owner to a certain amount of water subject only to the rights of senior appropriators and the amount of water available for appropriation. The holder of an adjudicated right is entitled to the use of a certain amount of water unless called out by senior users or unless the stream itself contains insufficient flow."

Id. at 749 (citations omitted).

"In an effort to protect small agricultural or domestic well water users, the General Assembly has created a statutory category for exempt wells that differs from all other water rights. By that statutory exception, the General Assembly has awarded the expectancy of a certain priority date, unaffected by the year in which the exempt well owner files for adjudication. Thus, vested water rights in exempt wells are not subject to the postponement doctrine set forth in section 37-92-306. Because of the statutory provisions regarding exempt wells, we conclude that an exempt well owner may attain a legally protected interest in his or her vested water fight merely by filing an application for adjudication of such well."

Id. at 749-50 (footnote and citation omitted).

"Rather, upon adjudication, 602 wells will receive as a priority date the date of their well permit, without reference to the date of the application for the adjudication. *See* § 37-92-602(4)."

Id. at 751.

"We read the statute to require the state engineer to take into account all vested water rights of which he has notice whether or not adjudicated, in determining the impact of a proposed non-exempt well. The General Assembly provided that exempt wells are entitled to a presumption that they do not materially injure the rights of others; the General Assembly did not provide that exempt wells are burdened by an inverse presumption that no other use materially injures them."

Id. at 752.

"Consistent with encouraging maximum beneficial use of the waters of the state, the senior appropriator is not entitled to command the whole or a substantial flow of the underground aquifer merely to facilitate his taking the fraction of the flow to which he is entitled. The cost

to the senior of reaching a lowered water table can be assigned to the junior."

Id. at 754 (citation omitted).

Williams v. Midway Ranches Property Owners Ass'n, Inc.

"Over an extended period of time, a pattern of historic diversions and use under the decreed right at its place of use will mature and become the measure of the water right for change purposes, typically quantified in acre-feet of water consumed."

Williams v. Midway Ranches Property Owners Ass'n, Inc., 938 P.2d 515, 521 (Colo. 1997) (footnote omitted).

"Absolute water rights used in one location may be quantified and changed for use in an augmentation plan to provide replacement water releases, so that diversion and use of water may be made out-of-priority elsewhere."

Id. at 521-22 (footnote omitted).

"Thus, the decreed flow rate at the decreed point of diversion is not the same as the matured measure of the water right. Into every decree awarding priorities is read the implied limitation that diversions are limited to those sufficient for the purposes for which the appropriation was made.

Because water rights are usufructary in nature, the measure of a water right is the amount of water historically withdrawn and consumed over time in the course of applying water to beneficial use under the tributary appropriation without diminishment of return flows."

Id. at 522.

"Determining the historic usage of a tributary water right is not restricted to change and augmentation plan proceedings . . . equitable relief is available, upon appropriate proof, to remedy expanded usage which injures other decreed appropriations."

Id. at 522-23.

"All water rights are subject to beneficial use as the measure of the right. When prior change decrees are subject to interpretation in subsequent change proceedings, the ordinary interpretation to be made in the absence of a quantification or otherwise controlling terms of a prior judgment is that historic usage under the appropriation at its decreed point of diversion governs the extent of usage under the change decree."

Id. at 523 (citation omitted).

"Under the 1969 Act, water courts have jurisdiction, based upon an adequate application and resume notice, to adjudicate the amount of water allocable to each share for augmentation plan replacement purposes, calculated upon the historic usage of a ditch company's tributary water right."

Id. at 525 (citation omitted).

"[W]hen historical usage has been quantified for the ditch system by previous court determination, the yield per share which can be removed for use in an augmentation plan is not expected to differ from augmentation case to augmentation case, absent a showing of subsequent events which were not previously addressed by the water court but are germane to the injury inquiry in the present case."

Id. at 526 (footnote omitted).

WATERSHED PLANNING*

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WATERSHED PLANNING DEFINED

Watershed planning is a term used to describe efforts to protect and enhance water quality using a watershed as the geographic area of focus. Watershed planning has its origins in federal programs estab-

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lished by the Federal Clean Water Act,[1] but it is inherently interjurisdictional and interdisciplinary requiring both cooperation among several units of government and the integration of two discrete disciplines—water quality management and land use planning. A typical watershed does not stop at the boundaries of a political jurisdiction, and, although a watershed plan may be based initially on federal policies and funding, its implementation is in large part through local government ordinances and regulations.

In the past, most important water resource management decisions have been made at the federal and state level with little input from municipal and county governments. With the increasing awareness of the relationship between land use activities and water pollution, local government involvement has become a critical component to water quality protection. However, land use planning and regulation typically address land use activities from a single jurisdictional perspective, whereas watersheds reflect topographic drainage patterns rather than political borders. Rarely is land ownership, much less control, vested in a single entity in a major watershed.[2] Successful watershed planning, therefore, requires an emphasis on regional planning. A watershed focus can facilitate attention to physical and biological, as opposed to purely chemical impacts to a waterbody. It also involves water pollution prevention and restoration of a watershed, rather than the mere mitigation of ongoing harm.[3]

Watershed planning is also the only way to address water pollution from nonpoint sources of pollution which remain largely unregulated.[4] A major strategy for attacking nonpoint pollution is to reduce surface runoff from land use activities through a watershed strategy for an entire watershed that relies on land use planning and controls implemented by local governments. Local management based on a watershed approach allows programs to target the worst causes of polluted run-off and to implement the combination of solutions tailored to the conditions of each watershed.[5]

AUTHORITY FOR WATERSHED PLANNING

FEDERAL APPROACHES

Under the regulatory scheme established by the Clean Water Act, water quality is either affected by "point source" or "nonpoint source" pollution. The term point source means "any discernable, confined

1. 33 U.S.C. §§ 1251-1387 (1995).

2. Robert W. Adler, *Addressing Barriers To Watershed Protection*, 25 ENVTL. L. 973, 991-92 (1995).

3. *Id.* at 995 .

4. *See* David Zaring, *Federal Legislative Solutions to Agricultural Nonpoint Source Pollution*, 26 ELR 10128 (1996); Daniel R. Mandelker, *Controlling Nonpoint Source Pollution: Can It Be Done?*, 65 CHI.-KENT L. REV. 479, 480 (1989).

5. Adler, *supra* note 2, at 994.

and discrete conveyance."[6] In contrast, nonpoint sources include atmospheric deposition, contaminated sediments, and land use activities that generate polluted run-off, such as construction, agriculture, logging, mining and on-site sewage disposal.[7] In recognition of a widely-held antipathy toward federal involvement in the regulation of land use on private land, the only activities subject to federal regulation under the Clean Water Act are those activities associated with a point source discharge of pollution.[8] Thus, nonpoint source pollution remains the greatest cause of water pollution.[9] However, several sections of the Clean Water Act establish a framework for addressing both point and nonpoint water quality on a watershed basis.[10]

Section 208 Areawide Waste Treatment Management Plans.

Watershed planning has its origins in Section 208 of the Clean Water Act.[11] Although this was the first formal acknowledgment by Congress of nonpoint source pollution, the 208 program has been criticized as a toothless system.[12] Even though the Senate has emphasized that it "clearly intended § 208 to produce specific nonpoint source abatement programs,"[13] § 208 efforts are largely unfunded and remain voluntary.

Section 208 requires states to designate boundaries of areas in the state "[w]hich as a result of urban industrial concentrations or other factors has substantial water quality control problems . . ." and to designate representative organizations "[c]apable of developing effective areawide waste treatment management plans for such area."[14] Section 208 also requires agencies to plan for point source regulatory programs and develop programs for identifying and controlling nonpoint source pollution from agriculture, silviculture, mining construction,

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6. 33 U.S.C. § 1362(14) (1995).

7. Office of Water, United States Environmental Protection Agency, *National Water Quality Inventory: 1992 Report to Congress* (EPA 841-R-94-001) (Mar. 1994).

8. An exception to this general rule is activities that require a federal license or permit which must demonstrate that they will comply with state water quality standards and requirements through a "401 Certification" required by § 401 of the Clean Water Act. *See* 33 U.S.C. § 1341 (1995).

9. *See* Association of State of Inter-state Water Pollution Control Administrators, *America's Clean Water: The State's Nonpoint Source Assessment* (1985), *reprinted in* Impact of Nonpoint Source Pollution on Coastal Water Quality: Hearing Before the Subcomm. on Fisheries and Wildlife Conservation and the Environment and the Subcomm. on Oceanography of the House Comm. on Merchant Marine and Fisheries, 100th Cong., 2nd Sess. 84-110 (1988); EPA, *National Water Quality Inventory, supra* note 7.

10. For a complete list of all federal programs and initiatives that are intended to reduce water pollution *see generally,* United States General Accounting Office, *Water Quality: A Catalog of Related Federal Programs* (GAO/RCED-96-173) (June 19, 1996).

11. 33 U.S.C. § 1288 (1995).

12. *See* 33 U.S. C. § 1329(h)(11) (1995). *See generally,* Richard A. March et al., *Nonpoint Source Water Pollution § 208 Planning: Legal and Institutional Issues,* 1981-1982 AGRIC. L. J. 324, 349 (explaining § 208 promoted voluntary compliance by planning agencies rather than mandatory control of nonpoint source pollution).

13. S. Rep. No. 370, 95th Cong., 1st Sess. 32 (1977).

14. 33 U.S.C. § 1288(a)(1)-(2) (1995).

urban run-off and related activities. According to one court, "[s]ection 208 charts a course not only for cleaning up polluted waters, but also for the prevention of future pollution by identifying problem sources, regulating construction of certain industrial facilities, and developing processes to control run-off sources of pollution."[15] Implicit in the structure of § 208 is the notion that these so-called processes to control run-off implicate local government land use controls.

Section 319 Nonpoint Source Management

The 1987 amendments to § 319 of the Clean Water Act[16] provide for the development of nonpoint source management programs by the states. Pursuant to this statute, states must: (1) identify waters not attaining water quality standards without additional nonpoint source controls, and (2) identify best management practices for categories of nonpoint source problems, along with programs, to implement best management practices to address these nonpoint sources. Section 319 is intended to operate principally through financial incentives providing federal matching funds for nonpoint source projects to states with approved management programs. Even though § 319 added nonpoint source pollution control to the Clean Water Act's other goals,[17] many commentators believe implementation of 319 has not been effective.[18]

Total Daily Maximum Loads

Section 303(d) of the Clean Water Act[19] requires that a state establish waste load allocations for point sources and load allocations for nonpoint sources for certain waterbodies. Together, these allocations comprise the total maximum daily load ("TMDL") for a waterbody. The TMDL is a mechanism for water-quality based control actions where technology-based controls alone are not adequate to meet water quality standards.[20] TMDL calculations ensure that the cumulative impacts of multiple point sources are accounted for and evaluated in conjunction with nonpoint sources in an integrated, basin-wide approach to identifying and resolving water pollution.[21]

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15. Natural Resources Defense Council v. Train, 395 F. Supp. 1386, 1389 (D. D.C. 1975).

16. 33 U.S.C. § 1329(a)-(b) (1995).

17. *See* 33 U.S.C. § 1251(a)(7) (1995).

18. *See* ROBERT W. ADLER ET AL., THE CLEAN WATER ACT TWENTY YEARS LATER, 173 (1993).

19. 33 U.S.C. § 1313(d) (1995).

20. 40 C.F.R. § 130.2(i) (1997).

21. A series of cases have been brought by the United States forcing states to comply with § 303(d) requirements to establish total maximum daily loads for all water quality limited stream segments. Section 303 total daily maximum load cases of note include: Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984); Sierra Club v. Browner, 843 F. Supp. 1304 (D. Minn. 1993); Alaska Ctr. For The Env't v. Browner, 20 F.3d 981 (9th Cir. 1994); Natural Resources Defense Counsel v. Fox,. 909 F.Supp 153 (S.D.N.Y. 1995); Idaho Sportsmen's Coalition v. Browner, 951 F. Supp. 962 (W.D. Wash. 1996).

Stormwater Regulation

Although technically not a watershed planning provision, Environmental Protection Agency's ("EPA") stormwater regulation program does address some aspects of run-off. Because EPA has not been given the authority to regulate nonpoint sources, the stormwater management program is limited to regulating stormwater's entry into or passage through a point source.[22] Section 402(p) of the Clean Water Act[23] requires certain stormwater discharges collected into point sources to obtain a discharge permit. Under the stormwater program, permits are required for stormwater discharges associated with categories of activities, including mineral extraction, manufacturing, hazardous waste facilities, landfills, recycling facilities, power generation, transportation, sewage treatment, construction disturbing more than five acres of land, and certain "light" industries.[24]

There are three types of National Pollutant Discharge Emission Standards ("NPDES") permits for discharges composed entirely of stormwater: individual, general, and group. Individual permits set specific numerical effluent limitations and are similar to standard NPDES permits, while general and group permits use pollution prevention rather than end-of-the-pipe treatment and require the discharger to implement "best management practices" ("BMPs"). BMPs are techniques that are designed to reduce contact of stormwater runoff with raw materials, machinery and waste.

EPA Watershed Policies

Several EPA policy documents have emphasized the importance of watershed planning. The term "watershed," as used in EPA policy documents, refers to a "geographic area in which water sediments and dissolved materials drain to a common outlet—a point on a larger stream, a lake, an underlying aquifer, an estuary or an ocean. This area is also called the drainage basin of the receiving water body."[25] EPA's watershed protection approach is built on three main principles. First, the target watersheds should be those where pollution poses the greatest risk to human health, ecological resources, desirable uses of the water, or a combination of these. Second, all parties with a stake in a specific local situation should participate in the analysis of problems and the creation of solutions. Finally, the actions undertaken should draw on the full range of methods and tools available for integrating them into a coordinated, multi-organization attack on the problem.[26]

22. *See* Brian Weeks, *Trends in Regulation of Stormwater and Nonpoint Source Pollution*, 25 ELR 10300, (June 1995).

23. 33 U.S.C. § 1342(p) (1995).

24. 40 C.F.R. § 122.26(b)(14)(i)-(xi) (1996).

25. Office of Water, United States Environmental Protection Agency, *Watershed Protection Approach: Annual Report 1992*, (EPA 840-R-93-001) (1993).

26. *Id.*

LAND USE REGULATION AND WATERSHED PLANNING

OVERVIEW

Traditional land use regulatory techniques can reduce or eliminate nonpoint source pollution in several ways. The comprehensive plan and the zoning ordinance can control the location, type and rate of new development. Subdivision controls, special overlay districts, special use permits and site plan review processes can include measures that require mitigation of nonpoint source pollution related to individual land use activities.[27]

COMPREHENSIVE PLANS

Comprehensive plans establish policies to guide decision-makers during the land planning process. These plans typically articulate long-term policies to guide decisions in such areas as transportation, housing, future land use, water and sewer, and other infrastructure. As a watershed management tool, a comprehensive plan can include statements of goals and objectives to address watershed management. In addition, the comprehensive plan can be used to identify critical areas for water quality protection such as open space sites, stream corridors, drainage-ways and wetlands. Where an areawide waste water management plan has been adopted under § 208 of the Clean Water Act, local government comprehensive plans should incorporate the policies and strategies identified in the 208 plan.

ZONING REGULATIONS

Zoning regulations usually address the overall density and uses allowed within the geographic area defined for each zoning classification. Typically, development characteristics such as density, height, setbacks, lot area coverage, impervious surface ratio and access to light are addressed. Setbacks from streams, lakes and wetlands are frequently required by zoning ordinances to minimize sedimentation, bank erosion and chemical pollutants from interfering with water quality.

An alternative to zoning requirements that apply to all zoning categories is the overlay district. An overlay district establishes additional requirements designed to protect specific environmentally sensitive areas. For example, portions of a watershed may be designated as an overlay district in which land use activities are regulated to prohibit degradation to the aquatic habitat. Transfer of development rights programs can also be used to transfer permitted densities from areas critical to water quality protection.[28]

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27. *See* Mandelker, *supra* note 4, at 489.

28. *See generally* Edward H. Ziegler and David F. Kernan, *Transfer Development Rights*, Technical Services Report No 1, Rocky Mountain Land Use Institute, University of Denver College of Law (1994).

One of the most effective zoning tools for minimizing water quality impacts associated with development is a limitation on the percentage of a site that may be covered by impervious surfaces.[29] As impervious coverage increases, the velocity and volume of surface run-off increases and there is a corresponding decrease in infiltration. Increased run-off results in increased erosion from areas disturbed by construction, which, in turn, increases sedimentation in adjacent waterbodies. Erosion can also cause loss of streamside habitat and instream habitat as the stream channel is covered by a blanket of eroded sand and silt.

SUBDIVISION CONTROLS

Another way to protect water quality is through subdivision design standards. Water quality impacts can be minimized by erosion and sedimentation control requirements, stormwater management systems, drainage design standards, landscaping specifications and construction management practices. To the extent polluted run-off from a subdivision cannot be avoided, developers should be required to mitigate the impacts of increased polluted run-off through some other project.[30]

In areas that experience high snowfall, snow storage requirements can be implemented to ensure that snowmelt does not result in a direct discharge to waterbodies. Subdivision site design standards can prevent direct stormwater discharge to water bodies by requiring urban runoff to first pass over vegetated, undisturbed land. Site design standards can prohibit major modifications of stream channels, wetlands or lake shorelines and require that all instream work be avoided.

The design of the subdivision itself can affect water quality by encouraging the clustering of dwelling units and requiring that aquifer recharge areas, wetlands, steep slopes or other sensitive areas be left free from development.[31] Street widths can be reduced to minimize paved surface areas and wetlands can be used to filter runoff from the development before it enters adjacent waterbodies.[32]

REGIONAL PLANNING

To effectively employ land use planning and zoning techniques as a watershed protection tool, cooperation among neighboring units of government is essential. Typically, land use regulatory authority is coterminous with municipal or county boundaries. However, the need for a regional approach is evident when communities attempt to protect water quality because water pollution problems do not respect po-

29. *See* Chester L. Arnold, Jr. and C. James Gibbons, *Impervious Surface Coverage: The Emergence Of A Key Environmental Indicator*, 62 J. AM. PLAN. ASS'N 243 (1996).

30. Summit County, Colorado requires developers to mitigate additions of phosphorous to Lake Dillon on a one to one basis. Some developers have met this requirement by sewering old septic systems.

31. RANDALL ARENDT ET AL., RURAL BY DESIGN: MAINTAINING SMALL TOWN CHARACTER, (1994).

32. PETER CALTHORPE, THE NEXT AMERICAN METROPOLIS, 72-74 (1993).

litical boundaries.[33] Decisions to approve land use activities in one jurisdiction can have adverse water quality impacts on a neighboring, downstream jurisdiction. Regional planning can encompass strategies to control these impacts from developments that transcend the boundaries of individual units of local government. Regional planning may be implemented by multi-state authorities, such as the Tennessee Valley Authority or the Columbia River Gorge Area; associations of municipalities and counties within a particular geographic area of a state; or by neighboring municipalities within a county. At least twenty-four states authorize some type of regional planning and eighteen states authorize the transfer of functions from one unit of government to another by voluntary agreement.[34]

Recently, a regional planning approach known as the "compact" has received attention from commentators.[35] This is a voluntary approach to regional cooperation that includes a regional plan and an ongoing management process for a particular geographic area. Each unit of government with jurisdiction in that area is a designated stakeholder. Under the compact approach, each governmental unit has the option of implementing portions of a regional plan. If it adopts the plan, it becomes a "participating community" in a compact.[36] The compact approach is ideal for addressing issues on a watershed scale because it integrates units of government horizontally (between neighboring jurisdictions) and vertically (between federal, state and local levels), all of which may have an impact on water pollution associated with the use and development of land.

Several states have enacted statutes that confer on local governments the authority to regulate "developments of regional impact" ("DRIs").[37] Examples include the Georgia Planning Act of 1989, which authorizes the Georgia Department of Community Affairs to establish rules and procedures for local government and regional agency review of development projects with regional impacts;[38] the Cape Cod Commission Act[39] which allows the Cape Cod Commission to review, approve, approve with conditions or deny projects with regional impacts; and the Colorado Areas and Activities of State Interest Act[40] which authorizes municipalities and counties to regulate certain "areas and

33. Marie L. York, *Regions: Blind Isolation or Shared Vision?*, 47 LAND USE LAW 4, 3 (1995).

34. Patricia E. Salkin, *Regional Planning: New Political Magnetism*, 44 LAND USE LAW 6, 3 (1992).

35. *See generally* Paul M. Bray and Patricia E. Salkin "*Planning by Compact: A New Regional Approach,*" 48 LAND USE LAW 3, 3 (1996).

36. *Id.*

37. *See generally*, M. Morris, *Regulating Regional Impacts: Toward Model Legislation*, 47 LAND USE LAW 8, 3 (1995).

38. GA. CODE ANN. § 50-8.7.1 (1994).

39. 1989 Mass. Acts 716, *amended by* 1990 Mass. Acts 2 (*repealed 1991*).

40. COLO. REV. STAT. § 24-65.1-101, et seq. (1990) (H.B. 1041). See also, Barbara Green et al., *H.B. 1041: A Voice in the Wilderness*, 19 COLO. LAW., No. 11, pp. 2245-47 (Nov. 1990).

activities of state interest."[41] Pursuant to this authority, several Colorado municipalities and counties have implemented permit requirements to regulate the impact to water quality caused by matters of state interest.

LEGAL ISSUES RELATED TO WATERSHED PLANNING

SECTION 208 PLANNING: IS IT ALIVE?

The earliest court decision to discuss the validity of water quality planning under § 208 of the Clean Water Act is *Natural Resources Defense Council v. Costle.*[42] In that case, the Natural Resources Defense Council brought an action in federal district court seeking a declaratory judgment construing the planning required under § 208.[43] The United States Court of Appeals for the District of Columbia upheld the district court decision that 208 planning was required throughout a state, stressing that § 208 "sets up a comprehensive scheme for the elimination of water pollution in all areas of the state, both urban-industrial areas and agricultural and forest areas."[44]

The continued viability of § 208 as a watershed planning tool was affirmed eleven years later by the Fourth Circuit in *Shanty Town Associates Limited Partnership v. Environmental Protection Agency.*[45] A developer filed suit challenging the EPA's restrictive conditions on funds granted to the municipality for construction of a sewage collection system.[46] Although the District Court for the District of Maryland held that the developer lacked standing and that its arguments failed on their merits, the Fourth Circuit granted standing, but held that EPA had the authority to impose conditions on the grant award to minimize nonpoint source pollution.[47] The case involved an EPA imposed condition on the grant which limited the amount of new development it could support. The concern was that better sewer service would lead to an explosion of development which would, in turn, lead to increased nonpoint source pollution.[48] The developer argued that imposition of this condition by EPA was an unlawful attempt to regulate nonpoint source pollution.[49] The court disagreed, noting that § 208(f) of the Clean Water Act authorizes EPA to make grants to the states to help

41. COLO. REV. STAT. § 24-65.1-101 (1997).
42. Natural Resources Defense Council v. Costle, 564 F.2d 573 (D.C. Cir. 1977).
43. *Id* at 575.
44. *Id.* at 576.
45. Shanty Town Assoc. Ltd. Partnership v. Environmental Protection Agency, 843 F.2d 782 (4th Cir. 1988).
46. *Id.* at 784.
47. *Id.* at 788.
48. *Id.*
49. *Id.* at 790.

defray the costs of developing and administering 208 plans.[50] The court found that 208 requires plans to contain procedures to identify and address major sources of nonpoint source pollution, and that grants for sewer systems are a potential method for controlling nonpoint source pollution.[51]

EXPANDING JURISDICTION UNDER THE CLEAN WATER ACT

Although the Clean Water Act is designed primarily to control point source discharges of pollution, EPA and the courts consistently have taken an expansive view of activities subject to Clean Water Act regulation, perhaps out of frustration that little has been accomplished to reduce nonpoint source pollution. Through broad interpretations of the term "point source" and liberal interpretations of 401 certification powers, the courts and EPA have relied on the Clean Water Act to address water quality impacts that go well beyond the discharge of pollutants and, arguably, the intended scope of the Clean Water Act.

IS EVERYTHING A POINT SOURCE?

EPA has stated its intent "to embrace the broadest possible definition of point source consistent with the legislative intent of the Clean Water Act."[52] The Director of the Water Management Division of EPA in Region Eight recently explained that " any seeps coming from identifiable sources of pollution (i.e., mine workings, land application sites, ponds, pits, etc.) would need to be regulated by discharge permits."[53] Courts have agreed with EPA's broad interpretation of the term point source, finding that point sources must be interpreted broadly to effectuate the remedial purposes of the Clean Water Act.[54]

A case in point arose in Washington where environmental organizations sued Hecla Mining Company for discharging without an NPDES permit. In *Washington Wilderness Coalition v. HECLA Mining Co.*, [55] plaintiffs argued that tailings ponds were a point source which required an NPDES permit. The mining company maintained that its tailing ponds were not point sources but merely "areas of low topography into which mine tailing for mineral processing activities have been deposited and through which water may percolate."[56] The court rejected this argument citing several cases to support the conclusion that man-made ponds designed to receive tailings are conveyances or containers falling within the definition of point source under the Clean

50. *Id.* at 791.

51. *Id.* at 790-91.

52. *See* 55 Fed. Reg. 47990, 47997 (Nov. 16, 1990) ("Preamble to storm water regulations under NPDES.").

53. Letter from Director of the Water Management Division of EPA, Region 8.

54. United States v. Earth Sciences, Inc., 599 F.2nd 368, 373 (10th Cir. 1979); *see also* Trustees for Alaska v. EPA, 749 F.2d 549, 558 (9th Cir. 1984).

55. Washington Wilderness Coalition v. HECLA Mining Co., 870 F. Supp. 983 (E.D. Wash. 1994).

56. *Id.* at 987.

Water Act.[57] The court narrowed the scope of activities falling under the nonpoint source designation to "uncollected runoff water from, for example, oil and gasoline on a highway which is difficult to attribute to a single polluter."[58]

Through a similar analysis, acid mine drainage flowing into creeks has been found to be a pollutant requiring an NPDES permit. In the case of *Beartooth Alliance v. Crown Butte Mines,*[59] a federal district court held that mine audits and pits were point sources requiring a discharge permit. The court rejected the defendants' argument that no permit was needed because there had been no "addition" of pollutants as a result of mining.[60] The court admonished that "any reliance on historical pollution to evade current liability misapprehends the focus of the Clean Water Act." [61] The court based its ruling on the Ninth Circuit case, *Committee to Save Mokelumne River v. East Bay Utility*[62] in which a municipal utility and state agency were held liable for discharging without a permit for drainage collected into a dam which, from time to time, flowed into the river.[63]

The *East Bay* case raises problematic implications to watershed planning efforts aimed at restoring waters polluted from historic mining activities. *East Bay* arose from a lawsuit brought by an environmental group against a municipal utility district and regional water-quality control board for unpermitted discharges under the Clean Water Act.[64] The utility district had acquired a portion of an abandoned mine in the 1960s to build a reservoir. In the 1970s, the district and the board constructed impoundments, ditches, pipes, valves, culverts, and channels in an attempt to reduce toxic run-off from the site, which they continued to operate. From time to time, there were accidental spills from the facility.

Even though this treatment system improved the over-all water quality of the river, the court found that the discharge of collected run-off and the accidental spills were a point source subject to the Clean Water Act's permit requirements.[65] The defendants conceded

57. *Id.* at 988, *citing,* Appalachian Power Company v. Train, 545 F.2d 1351, 1373 (4th Cir. 1976) (distinguishing point sources from "unchanneled and uncollected" surface waters); Consolidated Coal Co. v. Costle, 604 F.2d, 239, 249 (4th Cir. 1979) (explaining that point sources include slurry ponds, drainage ponds, and coal refuse piles); Sierra Club v. Absten Construction Co., 620 F.2d 41, 45 (5th Cir. 1980) (stating that gravity flow from rain or run-off water may be part of a point source discharge if the miner at least initially collected or channeled the water and other materials).

58. *Washington Wilderness Coalition,* 870 F. Supp. at 988.

59. Beartooth Alliance v. Crown Butte Mines, 904 F. Supp. 1168 (D. Mont. 1995).

60. *Id.* at 1172.

61. *Id.*

62. Committee to Save Mokelumne River v. East Bay Util., 13 F.3d 305 (9th Cir. 1993), *cert. denied,* 513 U.S. 873 (1994).

63. *Id.* at 308 (finding that historical level of pollution compared to current level of pollution emanating from facility was not material to resolution of Clean Water Act claim that owners and operators were discharging pollutants).

64. *Id.* at 307.

65. *Id.* at 308.

that the acid-mine drainage was a pollutant, and that the facility was a point source, but they argued that because there was no addition of pollutants from their activities, they were not liable under the Clean Water Act.[66] Rejecting this argument, the court said that the Clean Water Act does not require that there be a greater level of pollution entering the river than before in order to impose liability for discharging pollutants without a permit.[67] Under the reasoning of this case, watershed based efforts to address water pollution caused by abandoned mines may be chilled because of the fear of incurring Clean Water Act liability anytime run-off from an abandoned mine is collected or channeled. Not all courts, however, have agreed with the Ninth Circuit's conclusion that liability arises even where there is not an "addition" of pollutants. For example, in *Friends of Santa Fe County v. L. A. C. Minerals, Inc.*,[68] an environmental group brought a citizens' suit to challenge mine remediation work being performed under the oversight of the State of New Mexico. In that case, the court found that the citizens' suit must prove that the defendants caused an *addition* of pollutants, because "migration of residual contaminations resulting from previous releases is not an ongoing discharge under the Act."[69] Other courts have also held that Clean Water Act permit requirements arise only where there is an "addition" of pollutants.[70]

DISCHARGES TO GROUNDWATER AS POINT SOURCES

In keeping with the trend to sweep as much as possible under the definition of point source, the courts have extended federal jurisdiction over point source discharges to address groundwater contamination, even though the Clean Water Act does not directly regulate groundwater quality. The Clean Water Act makes it unlawful for any person to discharge any pollutant into navigable waters without a permit."[71] Given the Act's purpose to regulate as fully as possible all sources of water pollution, the Supreme Court has decided that the term navigable is of "little import."[72] According to the Court, Congress intended navigable waters to embrace virtually "every creek, stream, river or body of water that in any way may effect interstate commerce."[73] Congress did not, however, intend to include isolated

66. Id.

67. *Id.* at 309.

68. Friends of Santa Fe County v. L. A. C. Minerals, Inc., 892 F.Supp. 1333 (D. N.M. 1995).

69. *Id.* at 1354.

70. *See, e.g.*, National Wildlife Fed. v. Consumers Power Co., 862 F.2d 580, 589 (6th Cir. 1988) (hydroelectric dam's facilitation of pollutants already in the water not permittable addition of pollutants); National Wildlife Fed. v. Gorsuch, 693 F.2d 156, 175 (D.C. Cir.1982) (upholding EPA's determination that addition of a pollutant occurs only if the "point source itself physically introduces pollutants from the outside world).

71. As defined in the Clean Water Act, the term "navigable waters" means "[w]aters of the United States (§ 502, 33 U.S.C. § 1362(7) (1995)).

72. United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 133 (1985).

73. Quivera Mineral Co. v. EPA, 765 F.2d 126, 129 (10th Cir. 1985).

groundwater as part of the navigable waters.[74]

Where impacts to tributary groundwater, as opposed to isolated groundwater, are at issue, the law is not as clear. Courts are split on the question of whether tributary ground water which is naturally connected to surface water is subject to the Clean Water Act regulation. On the one hand, some courts have determined that Congress intended regulation of all discharges of pollutants that could affect surface waters of the United States.[75] On the other hand, there are courts which conclude that the possibility of a hydrologic connection between ground and surface waters is insufficient to trigger Clean Water Act regulations.[76] In *Washington Wilderness Coalition,*[77] the court reasoned that since the goal of the Clean Water Act is to protect the quality of surface waters, any pollutant that enters such waters, whether directly or through ground water, is subject to regulation by a NPDES permit. It is not sufficient, however, to allege ground water pollution, and then to assert a general hydrologic connection between all waters. Rather, pollutants must be traced from their source to surface waters in order to come within the purview of the Clean Water Act.[78]

EPA interprets its jurisdiction over groundwater to depend on a connection with surface water. In the preamble to the NPDES permit regulations for stormwater discharges, EPA states that the rule does not apply to groundwater "unless there is a hydrologic connection between the ground water and a nearby surface water body."[79]

FEDERAL LICENSES AND PERMITS: 401 CERTIFICATIONS

Carving out another exception to the general rule that the Clean Water Act regulates only point source discharges of pollutants, the United States Supreme Court has given states broad authority under § 401 of the Clean Water Act[80] to address impacts that are unrelated to the discharge of pollutants. In *PUD No. 1 of Jefferson County v. Washington Department of Ecology,*[81] the Supreme Court affirmed a Washington court's decision that allowed a state, through the 401 certification pro-

74. *See* Exxon Corp. v. Train, 554 F.2d 1310 (5th Cir. 1977); U.S. v. GAF Corp., 389 F. Supp. 1379 (S.D. Tex. 1975).

75. *See, e.g.,* Colo. Envt'l Coalition v. Colo. Refining Co., 838 F. Supp. 1428, 1434 (D. Colo. 1993) (finding discharge of any pollutant into navigable waters to include such discharges which reach navigable waters through ground water).

76. *See* Town of Norfolk v. United States Corps of Eng'rs, 968 F.2d 1438, 1450-51 (1st Cir. 1992) (deferring to an agency interpretation excluding ground water from coverage under the Clean Water Act); Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 965 (7th Cir. 1994); Kelly v. United States, 618 F. Supp. 1103, 1105-07 (W.D. Mich. 1985).

77. Washington Wilderness Coalition v. HECLA Mining Co., 870 F. Supp. 983, 990 (E.D. Wash. 1994); *see supra* note 55 and accompanying text.

78. *Id.* at 990.

79. NPDES permit regulations and groundwater, 55 Fed. Reg. 47,990, 47,997 (1990).

80. 33 U.S.C. § 1341 (1995).

81. PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology, 511 U.S. 700, 723 (1994).

cess, to impose minimum stream flow requirements on a hydroelectric project. The Court read § 401 to allow a state to impose any condition for water quality certification necessary to ensure compliance with state requirements that protect a designated use.[82] In accordance with this interpretation, the Court held that the minimum flow condition was necessary to protect the stream for its use as a fishery. [83]

A recently decided citizen suit in Oregon is illustrative of the trend to apply 401 certification for nonpoint source pollution within a watershed. In *Oregon Natural Desert Ass'n v. Thomas,*[84] a collection of environmental groups sued the Unites States Forest Service under the citizens suit provision of the Clean Water Act.[85] The groups wanted a declaratory judgment establishing that applicants for federal grazing permits are required to obtain state 401 certification to ensure that the grazing activity will not adversely impact state water quality standards.[86] Section 401(a)(1) requires that before a federal permit may be issued for "any activity . . . which may result in any discharge into navigable waters . . ."[87] a state certificate must be obtained. The forest service argued that the plain meaning of "discharge" is limited to a point source or a nonpoint source with a conveyance.[88] The court, however, was not persuaded by this argument and ruled that "discharge" does not restrict the definition to point sources or nonpoint sources with conveyances.[89] The court also held that the Forest Service's interpretation of the meaning of § 401 is not entitled to any deference because the EPA, not the Forest Service, administers the Clean Water Act.[90] Finally, the court determined that the legislative history of § 401(a) reveals a congressional intent to regulate all polluting activities through water quality standards and that there was no distinction between point and nonpoint sources in the original act. [91]

These expansive interpretations of Clean Water Act authority raise an interesting question for watershed planning professionals. Are these interpretations based on a fair reading of the Clean Water Act or are they symptomatic of an increasing awareness that the remaining water pollution problems are not easily addressed by traditional end-of-the-pipe controls? Arguably, a coordinated watershed approach that features local regulation of land use activities is a better solution

82. *Id.* at 712.

83. *Id.* at 719-22; *see also* Kelley v. Federal Energy Regulatory Comm'n, 96 F.3d 1482 (D.C. Cir. 1996).

84. Oregon Natural Desert Ass'n v. Thomas, 940 F. Supp. 1534, 1536 (D. Or. 1996).

85. Clean Water Act § 505, 33 U.S.C. § 1365 (1995).

86. *Oregon Natural Desert Ass'n,* 940 F. Supp. at 1536-37.

87. 33 U.S.C. § 1341(a)(1) (1995).

88. *Oregon Natural Desert Ass'n,* 940 F. Supp. at 1540.

89. *Id.*

90. *Id.*

91. *Id.* at 1541, "Senator Cooper stated that the 1970 Amendments require, without exception, that all federal activities that have any effect on water quality be conducted so that water quality standards be maintained," *quoting* 115 CONG. REC. 28,970 (1969).

to nonpoint source pollution than an ever-expanding notion of Clean Water Act authority.

VALIDITY OF LOCAL REGULATION OF WATER QUALITY IMPACTS

Since the 1960s, state legislatures have passed enabling acts to permit local protection of certain critical resources, including water resources.[92] Pursuant to these enabling statutes, local governments have enacted ordinances to restrict developments in wetlands, farmlands and historic districts and sites.[93] Courts have upheld these attempts to address the environmental impacts of land use activities.[94] In some states, legislative enactments expressly authorize some form of watershed regulation.[95] Local government regulations designed to implement watershed plans can give rise to the same claims that are raised to challenge any land use regulation, including takings, equal protection, due process and preemption theories.

TAKINGS, DUE PROCESS AND EQUAL PROTECTION

Land use regulations designed to protect water quality frequently include a requirement that a portion of a development site near a waterbody be kept in a natural state. This type of development restriction may give rise to a "takings" claim. In particular, any regulation that actually requires land to be dedicated to the public should be carefully considered under the two-part test established by the United States Supreme Court in *Dolan v. City of Tigard.*[96] Under that test, the dedication requirement must "substantially advance" a legitimate government purpose and the exaction or dedication must be "roughly proportional"[97] to the impact of the project.

In *Dolan,* Mrs. Dolan challenged the requirement to dedicate to the City all of the land lying within the floodplain of Fanno Creek.[98] The floodplain was designated in the City's Master Drainage Plan which recommends that it remain free of structures and be preserved as a greenway. The City's comprehensive plan recommended that the floodplain be included in the greenway system and the Community Development Code required dedicating sufficient open space for an

92. *See* R. PLATT, LAND USE CONTROLS: GEOGRAPHY, LAW, AND PUBLIC POLICY 219, 241 (1991).

93. J.H. WICKERSHAM, THE QUIET REVOLUTION CONTINUES: THE EMERGING NEW MODEL FOR STATE GROWTH MANAGEMENT STATUTES (1995) (Zoning and Planning Law Handbook).

94. *See, e.g.,* City of Colorado Springs v. Board of County Comm'rs, 895 P.2d 1105, 1120 (Colo. Ct. App. 1994), *cert. denied,* 116 S.Ct. 564 (1995) (upholding county authority to enact regulations to address impacts to aquatic habitats and wetlands).

95. *See,* for example: Colorado, COLO. REV.STAT. § 31-15 707(iv)(b) (1997) (authorizing municipalities to regulate in an area five miles from the source of water supply); North Carolina, N.C. Gen. Stat. § 143-214.5 & 143.6(a), 143-215.6(a) (1996).

96. Dolan v. City of Tigard, 512 U.S. 374, 384 (1994).

97. *Id.* at 391.

98. *Id.* at 380-83 (plaintiff also challenged a requirement to dedicate a 15 foot pedestrian/bikeway).

adjoining greenway within the floodplain.[99] The Dolan's did not dispute that establishing a greenway in the floodplain for stormwater control was a legitimate public purpose. Instead, they claimed that there was not a sufficient nexus between the requirements and the impacts of the development.

The Supreme Court agreed and explained that under the "roughly proportional" test: "[n]o precise mathematical calculation is required, but the city must make some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development."[100] The court was not persuaded that a public greenway, as opposed to a private one, was related to the City's goal to minimize stormwater run-off or prevent flooding.[101] The court confirmed, however, that "increasing the amount of impervious surface will increase the quantity and rate of stormwater flow from the petitioner's property."[102]

In 1987, the Supreme Court, in *Nollan v. California Coastal Commission*,[103] established the "essential nexus" test for dedications of land developed more fully in *Dolan*.[104] The *Nollan* decision found a taking because the Coastal Commission justified exacting an easement along the front of the property facing the ocean as necessary to obtain access to the beach.[105] The court found that the Commission's justification failed to satisfy the "essential nexus" test.[106]

From the Supreme Court's point of view regarding land dedications, it appears that mitigating nonpoint source run-off is an appropriate governmental land use goal, but land dedication requirements may not be the safest solution. Regulations that require parts of a parcel to remain undeveloped (as in the case of stream setbacks) may be a better way to accomplish the goal.[107] There may be circumstances, however, in which only a dedication of property to the public will serve the public interest in water quality protection. In those cases, the local government must be prepared to show that there is an essential nexus between water quality and the dedication and that the extent of the dedication is roughly proportionate to the water quality impacts of the development.

Watershed planning efforts by the Lake Tahoe Regional Planning Authority have generated interesting court decisions discussing the constitutional validity of various water quality management schemes. For example, conditions imposed on a development by the Authority

99. *Id.* at 379.
100. *Id.* at 391.
101. *Id.* at 389-91.
102. *Id.* at 392.
103. Nollan v. California Coastal Comm'n, 483 U.S. 825 (1987).
104. *Id.* at 836-37.
105. *Id.*
106. *Id.* at 838.
107. For an excellent discussion of Dolan and post-Dolan decisions, *see* Nancy E. Stroud & Susan L. Trevarthen, *Defensible Exactions After Nollan v. California Coastal Commission and Dolan v. City of Tigard*, 25 Stetson L. REV. 719 (1996).

survived a takings challenge in *Leroy Land Development v. Tahoe Regional Planning Authority.*[108] In that case, the Ninth Circuit reversed a lower court's decision that offsite mitigation conditions to protect water quality failed to advance the governmental purpose of protecting Lake Tahoe.[109] Persuaded by the fact that the interstate compact forming the regional authority was created to minimize the adverse effect of urbanization due to erosion and pollution, the Ninth Circuit held that the off-site mitigation requirements were designed to "ameliorate erosion, destabilization and other adverse environmental effects . . ." and directly furthered the governmental interest underlying the regulations.[110]

In another Lake Tahoe case, a property owners' association challenged as a takings a lake pollution mitigation fee assessed at the time of building permit issuance. In *Tahoe Keys Property Owners' Ass'n v. State Water Resources Control,*[111] the court found that the justification for the regulation need not be limited to the needs or burdens created by the subject property alone.[112] According to the court, the plaintiffs were not unfairly singled out because: (1) the regulations to protect the lake, if not this particular fee, applied to all property owners, and (2) regulation of the property was the only way to protect the lake.[113]

Courts have been clear and consistent in requiring some kind of relationship between conditions imposed on land use approvals to address water quality and the water quality impacts of a development proposal. A case in point arose where a developer was compelled to purchase land and install a drainage system that would serve other developments in a watershed area and the county failed to require repayment of a portion of the costs by future developers. In *Christopher Lake Development Co. v. St. Louis County,*[114] the court found that the drainage system requirement violated the developer's due process and equal protection rights because he was forced to pay more than his share of costs that should have been allocated throughout the watershed.[115] The case was remanded to the district court with instructions to determine the proper cost allocation scheme.

In Florida, in the case of *Villas of Lake Jackson v. Leon County,*[116] a developer sued a county challenging on equal protection and due process theories a rezoning ordinance designed to address water quality impacts to a watershed.[117] The rezoning was based on documented

108. Leroy Land Dev. v. Tahoe Reg'l Planning Auth., 939 F.2d 696, 697-99 (9th Cir. 1991).

109. *Id.* at 699.

110. *Id.*

111. Tahoe Keys Property Owners' Ass'n v. State Water Resources Control, 28 Cal. Rptr. 2d 734 (Cal. Ct. App. 1994), *cert. denied,* 513 U.S. 988 (1944).

112. *Id.* at 745.

113. *Id.* at 746-48.

114. Christopher Lake Dev. Co. v. St. Louis County, 35 F.3d 1269 (8th Cir. 1994).

115. *Id.* at 1275.

116. Villas of Lake Jackson v. Leon County, 884 F. Supp. 1544 (N.D. Fla. 1995).

117. *Id.* at 1548.

concerns about stormwater runoff further deteriorating the nearby lake's water quality. In that case, during the county's process of reviewing and approving a 1972 development proposal, the impact of drainage from the development on Lake Jackson became an issue. Accordingly, the developer agreed to install a stormwater management system before any development commenced on the project.[118] A drainage system was designed and built at a cost of $45,000 with a capacity larger than would have been necessary for the developer's property alone. In 1989, the county down-zoned the property from multifamily to estate zoning because of the water quality concerns associated with denser development and prohibited development within an area adjacent to the lake. The developer sued the county claiming, *inter alia*, that the zoning ordinance violated its due process rights and denied equal protection.[119]

The due process claim failed because the developer did not demonstrate a protected property right under state law.[120] With regard to the equal protection claim, plaintiffs identified several properties in the Lake Jackson drainage area which they contended were treated differently. The court examined the county ordinance under a traditional equal protection test and reiterated the Supreme Court's view in *Nordlinger v. Hahn*;[121] equal protection challenges that do not involve a suspect class or a fundamental right simply require the ordinance in question be "rationally related to a legitimate state interest" to withstand a facial challenge.[122] An ordinance must be upheld against equal protection challenge if there is any reasonable conceivable state of facts that could provide a rational basis for the classification.[123] In light of these lenient standards, the federal district court found that Leon County's interest in protecting the water quality of Lake Jackson through development restrictions was related to a legitimate and important county interest.[124] The court also found that density limits and setbacks around the lake were related in a rational way to that interest.[125]

Next, the court considered plaintiff's claim that the county intentionally singled out plaintiffs denying them equal protection of the law.[126] The court relied on *Village of Arlington Heights v. Metropolitan Housing Development Corp.*,[127] which held that purposeful discrimination

118. *Id.* at 1551.
119. *Id.* at 1548.
120. *Id.* at 1555.
121. Nordlinger v. Hahn, 505 U.S. 1, 10 (1992).
122. *Villas of Lake Jackson*, 884 F. Supp. at 1577.
123. *See* FCC v. Beach Communications, 508 U.S. 307 (1993).
124. *Villas of Lake Jackson*, 884 F. Supp. at 1577-78.
125. Setback requirements usually withstand challenges. *See e.g.*, Threat v. Fulton County, 467 S.E.2d 546, 550 (Ga. 1996) (upholding a county requirement that prohibited development from disturbing vegetation within 50 feet of a river).
126. *Villas of Lake Jackson*, 884 F. Supp. at 1577.
127. Village of Arlington Heights v. Metropolitan Housing Dev. Corp., 429 U.S. 252, 266 (1977).

can be indirectly proven by a "stark pattern" of adverse impact on a particular group, and examined whether the evidence of differing treatment revealed a pattern of irrationality.[128] The court held that as long as there is a rational basis for the differing treatment, an as applied equal protection claim will not prevail.[129] The court also noted that the Supreme Court has recognized that it may be very difficult to show unequal application of the zoning ordinance since each parcel can be unique.[130] Because the county had been concerned about protecting the water quality of Lake Jackson for many years and had been studying a comprehensive plan for the entire drainage basin, the court found that the plan was not aimed at plaintiff's property.[131]

These cases illustrate that watershed protection schemes are evaluated under the same standards that apply to any land use regulations. Clearly, watershed protection is a legitimate governmental purpose.[132] Setback requirements, impervious surface restrictions and density controls are all appropriate tools to protect water quality and dedications of land for water quality purposes will be subject to scrutiny under the *Dolan* test which requires that the dedication be "roughly" proportionate to the impacts of the proposed land use. Equal protection challenges of watershed regulations are likely to fail, even if parcels of property are treated differently, so long as the differing treatment is related to a comprehensive water quality management program.

FEDERAL OR STATE PREEMPTION

The implementation of a watershed plan through local land use regulations may trigger challenges on the basis of federal or state preemption. Implementing regulations will be adjudged under the usual standards applied by the courts to resolve preemption questions. Preemption challenges to watershed planning typically arise either where watershed regulations are applied to projects located on federal lands or where they allegedly conflict with state or federal water quality laws.

In *California Coastal Commission v. Granite Rock Co.*,[133] the United States Supreme Court characterized the federal preemption test as whether there is either an "actual conflict between state and federal

128. *Villas of Lake Jackson*, 884 F. Supp. at 1577.

129. *Id.* at 1579.

130. *Id.* *See also* Kawaoka v. City of Arroyo Grande, 17 F.3d 1227, 1240 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 193 (1994) (stating that "city's general plan and water moratorium were rational).

131. *Villas of Lake Jackson*, 884 F. Supp. at 1579. Also applying a traditional due process and equal protection analysis is City of Austin v. Quick, 930 S.W.2d 678, 692 (Tex. Ct. App. 1996) (holding that city ordinance limiting amount of impervious cover in watershed zone did not violate either due process or equal protection).

132. *See, e.g.*, ACW Realty Management, Inc. v. Planning Bd. of Westfield, 662 N.E.2d 1051 (Mass. App. Ct. 1996), *see also* Connecticutt Resources Recovery Auth. v. Planning and Zoning Comm'n of Wallingford, 626 A.2d 705, 716 (Conn. 1993) (finding that "zoning regulation prohibiting solid waste disposal over an aquifer was a valid exercise of police power).

133. California Coastal Comm'n v. Granite Rock Co., 480 U.S. 572 (1987).

law", or a "congressional expression of intent to preempt."[134] Local regulations which reflect the exercise of police powers will be preempted by federal statutes only "if that was the clear and manifest purpose of Congress."[135] Under these tests, federal preemption becomes a question of statutory interpretation and analysis. An actual conflict between state and federal law requires that the former give way.[136]

Where a project is located on federal land, state or local regulations designed to address water quality impacts will probably survive preemption attacks, at least with respect to federal land management statutes. According to the Supreme Court's holding in *Granite Rock*, local government regulations that seek to categorically prohibit activities on federal land will be preempted by federal land management acts but regulations that seek to regulate the environmental impacts of projects on federal lands would not be preempted by those acts.[137] Under this distinction, a county could not zone federal lands to categorically exclude land uses allowed by federal law. It could, however, impose regulations on land uses intended to ensure that adverse water quality impacts would be mitigated.

Watershed regulations may also be challenged under theories that they are preempted by federal and state water quality regulatory schemes. Given the point source focus of the Clean Water Act and federal policies that reserve to state and local governments the authority to regulate nonpoint sources, most land use regulations addressing water quality impacts of land use activities should survive preemption attacks brought under the Clean Water Act.

Courts have evaluated whether the Clean Water Act preempts local water quality regulations in a variety of cases. In *Welch v. Board of Supervisors*,[138] a county ordinance banning land application of sewage sludge was held not to be preempted by the Clean Water Act because the ban does not conflict with Clean Water Act sludge disposal policies and more stringent county land ban regulations are expressly allowed by regulation.[139] In *Holiday Point Marina v. Anne Arundel County*,[140] a Maryland appellate court found that Army Corps of Engineers' review under the Clean Water Act and Rivers and Harbors Appropriation Act permit requirements did not preempt a zoning ordinance prohibiting marina development within a specific distance of shellfish beds.[141]

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134. *Id.* at 580-81.

135. Rice v. Santa Fe Elevator Corp., 3311 U.S. 218, 230 (1947); *see also* Pacific Gas & Elec. Co. v. Energy Resources Comm'n, 461 U.S. 190, 206 (1982), Ray v. Atlantic Richfield, 435 U.S. 151, 157 (1978).

136. *Ray*, 435 U.S. at 168-69.

137. *Granite Rock*, 480 U.S. at 1428-29.

138. Welch v . Bd. of Supervisors, 888 F. Supp. 753 (W.D. Va. 1995).

139. *Id.* at 756-57.

140. Holiday Point Marina v. Anne Arundel County, 666 A.2d 1332 (Md. App. 1996).

141. *Id.* at 1338.

Whether state law preempts local government water quality ordinances is a question of state statutory interpretation.[142]

142. *See, e.g.*, Water Quality Ass'n v. County of Santa Barbara, 52 Cal. Rptr. 2d 184, 191 (Cal. Ct. App. 1996) (finding county ordinance governing water softeners in conflict with and preempted by state law); City and County of Denver v. Bd. of County Commissioners, 782 P.2d 753, 765 (Colo. 1989) (holding that state water rights administration statute did not completely exempt water projects from local government regulations); State College Borough Water Auth. v. Bd. of Supervisors, 659 A.2d 640, 645 (Pa. Commw. Ct. 1995) (finding that county regulations requiring domestic water system development not significantly deteriorate wetlands or degrade natural scenic were enacted pursuant to statutory authority to impose more stringent regulations.).

WATER QUALITY ISSUES IN AUGMENTATION PLANS AND EXCHANGES

CARMEN SOWER-HALL AND HOLLY I. HOLDER[‡]

INTRODUCTION

In Colorado, a water right "is among the most valuable property rights known to the law."[1] However, the extent to which the quality of the water encompassed within that right is protected is another matter. The purpose of this paper is to analyze the relationship and interaction between water quality and water rights, specifically, whether the issue of water quality has any impact on the adjudication or administration of augmentation plans or exchanges. This is an issue that is being raised in Colorado's water courts with increasing frequency. However, Colorado's existing statutory framework and case law may not adequately address the critical interplay between water rights and water quality.

DISCUSSION

As a preliminary matter, one must first understand what is meant by a water right. As noted above, a Colorado water right "is among the most valuable property rights known to the law."[2] Coupled with the notion of valued property right is the state's goal of maximum beneficial use of state waters. The Colorado Constitution confirms that "[t]he right to divert the unappropriated waters of any natural stream

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* * *

1. White v. Farmers Highline Canal Reservoir. Co., 43 P. 1028, 1030 (Colo. 1896).
2. *Id.*

to beneficial uses shall never be denied."[3] Additionally, a Colorado water right is freely alienable, includes a priority date, a quantity, a right to the maintenance of stream conditions existing at the time of appropriation, and a specified source, among other aspects.[4] This is the meaning of a "water right" as opposed to a water quality issue that might affect that right.

In today's world of environmental awareness, issues of water quality are starting to arise in traditional water right contexts. Of course, it should be noted from the outset that as early as 1897, the right to appropriate water was subject to some quality protection, such as the prohibition against polluting remaining flows so as to preserve the utility of the water for subsequent water users.[5] However, it is only within the past few years that the issue has been asserted with any frequency.

The focus of this paper is the tension between water rights and water quality in the context of augmentation plans and exchanges. Specifically, what happens when upstream appropriators have a duty to provide return flows pursuant to an augmentation plan when either: (1) their use of the water alters the quality of the return flows, or (2) they provide return flows by relying on a separate source, the quality of which differs from that of the original supply. Two Colorado statutes play an integral role in the analysis of the issue. Each addresses the quality of water that the senior appropriator may expect in any substitution. First is Colorado Revised Statutes ("C.R.S.") section 37-92-305(5):

> Any substituted water shall be of a quality and quantity so as to meet the requirements for which the water of the senior appropriator has normally been used, and such substituted water shall be accepted by the senior appropriator in substitution for water derived by the exercise of his decreed rights.[6]

Second is C.R.S. section 37-80-120(3) which states that "[a]ny substituted water shall be of a quality and continuity to meet the requirements of use to which the senior appropriation has normally been put."[7] Before discussing the impact of these statutes, the following provides a brief sketch of Colorado's adjudicative and administrative oversight over water right and water quality issues.

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3. COLO. CONST. art. XVI, §6.

4. *See* Brighton Ditch Co. v. City of Englewood, 237 P.2d 116 (Colo. 1951); People *ex rel.* v. Hinderlider, 57 P.2d 894 (Colo. 1936); Nichols v. McIntosh, 34 P. 278 (Colo. 1893); Farmers Highline Canal & Reservoir. Co. v. City of Golden, 272 P.2d 629 (Colo. 1954); Stonewall Estates v. CF&I Steel Corp., 592 P.2d 1318 (Colo. 1979).

5. Suffolk Gold Mining and Milling Co. v. San Miguel Consol. Mining & Milling Co., 48 P. 828 (Colo. Ct. App. 1897), *appeal dismissed*, 52 P. 1027 (Colo. 1898).

6. COLO. REV. STAT. § 37-92-305(5) (1997).

7. COLO. REV. STAT. § 37-80-120(3) (1997).

1. Administration of Water Rights versus Administration of Water Quality

In Colorado, the responsibility for issues involving one's water rights and for issues involving the quality of the water under those rights is divided between two distinct entities. Generally, the water courts oversee the adjudication of water rights, and typically focus on the amount and quality of water received under a right. With respect to strict issues of quality, the quality of discharged effluent is subject to administrative review by the Water Quality Control Commission.

Colorado's water rights appropriation system is presided over by water courts in a judiciary system as set forth in the Water Right Determination and Administration Act of 1969.[8] The Office of the State Engineer ("State Engineer") is taxed with the general administration of water rights as determined by the water courts.[9] As noted above, the Colorado Constitution and common law are very clear in their protection of these valuable property rights. Thus, the State Engineer plays an important role in water right adjudications and permitting processes.

To understand the management involved in water quality issues, it is necessary to first review the Federal Clean Water Act ("CWA").[10] The CWA requires that each state institute comprehensive water quality standards.[11] The CWA also requires that all dischargers obtain a permit before they may lawfully discharge into state waters.[12] To this end, the CWA requires that states provide quality certification before granting a discharge permit. Certification means that any discharge complies with the applicable quality standards.[13] In Colorado, the Water Quality Control Act coordinates these requirements of the CWA. Pursuant to statute, the Water Quality Control Commission ("Commission") was created specifically to manage water quality.[14] In turn, the Commission then recognizes that the State Engineer also has water quality responsibilities, such as those set forth in C.R.S. sections 37-92-305(5) and 37-80-120.[15] Indeed, the Commission is practically precluded from regulating those activities that specifically fall within the State Engineer's jurisdiction.[16]

The state Water Quality Control Act limits the ability of the Commission and the Water Quality Division (which also has authority over water quality issues) to impact the appropriative water rights established under the judiciary system:

8. COLO. REV. STAT. §§ 37-92-101 to -602 (1997).
9. COLO. REV. STAT. § 37-92-301(1) (1997).
10. 33 U.S.C. §§ 1251-1384 (1995).
11. 33 U.S.C. § 1313 (1995).
12. 33 U.S.C. § 1342 (1995).
13. 33 U.S.C. § 1341 (1995).
14. COLO. REV. STAT. § 25-8-202(1) (1997).
15. COLO. REV. STAT. § 25-8-202(7) (1997).
16. COLO. REV. STAT. § 25-8-202(7)(b)(ii) (1997).

> No provision of this article shall be interpreted so as to supersede, abrogate, or impair rights to divert water and apply water to beneficial uses in accordance with the provisions of sections 5 and 6 of article XVI of the Constitution of the State of Colorado, compacts entered into the by the State of Colorado, or the provisions of articles 80 to 93 of title 37, C.R.S., or Colorado court determinations with respect to the determination and administration of water rights. Nothing in this article shall be construed, enforced, or applied so as to cause or result in material injury to water rights.[17]

This language is consistent with Colorado's emphasis on the protection of water rights. However, as might be suspected, it is impossible to completely divorce water quality issues from water rights issues and maintain a clear dichotomy.

2. *Statutory Water Quality Requirements for Substitute Water Supplies in Water Rights Cases*

An augmentation plan is a water court decree that allows the depletion associated with the exercise of a tributary water right to be replaced by water from another source. The result is an increase in the supply of water available for beneficial uses.[18] There are literally thousands of operative adjudicated augmentation plans in place in Colorado. Many more plans are pending in water court applications. Pursuant to statute, an augmentation plan, including exchanges, allows a supplier to take an equivalent amount of water at his or her point of diversion if water is available and will not impair the rights of others.

> Any substituted water shall be of a quality and quantity so as to meet the requirements for which the water of the senior appropriator has normally been used, and such substituted water shall be accepted by the senior appropriator in substitution for water derived by the exercise of his decreed rights.[19]

This statutory language appeared in the original Water Right Determination and Administration Act of 1969, and has remained consistent throughout the subsequent modifications to the Act.[20] Also important to note is the statutory requirement that "[a]ny substituted water shall be of a quality and continuity to meet the requirements of use to which the senior appropriation has normally been put."[21]

Rules and regulations ("Rules") exist that clarify the State Engineer's role in water quality issues.[22] According to Rule 3.2, the Rules apply when the State Engineer has water quality authority, such as that

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17. COLO. REV. STAT. § 25-8-104(1) (1997).
18. COLO. REV. STAT. § 37-92-103(9) (1997).
19. COLO. REV. STAT. § 37-92-305(5) (1997).
20. 1969 Colo. Sess. Laws 1211, and amendments thereto.
21. COLO. REV. STAT. § 37-80-120(3) (1997).
22. Rules and Regulations For Implementation of Subsection 25-8-202(7), C.R.S., 2 COLO. CODE REGS. §402-8 (1992).

conferred by C.R.S. sections 37-80-120 and 37-92-305(5).[23] Rules 6.5.6 and 6.5.6.1 expressly state that the State Engineer may require that an applicant provide water quality data and analysis indicating whether a substitute supply is of a quality for which senior appropriation has normally been put:

> The State Engineer shall, under normal circumstances, consider proof of the following substitute supplies as evidence that the requirements of use to which a senior appropriation has normally been put will be met:
>
> Water discharged to surface streams in compliance with either a valid state discharge permit or with the applicable water quality standards under these Rules, where the applicable stream classifications include all uses to which the senior appropriation has normally been put and the standards include all parameters necessary to protect the requirements of use of the senior appropriator . . . .[24]

It would appear then that compliance with a discharge permit is, *under normal circumstances, evidence* that the statutory quality requirement has been met for purposes of the State Engineer's review of an application if *the applicable stream classifications include all uses to which the senior appropriation has normally been put.* However, this is in no way binding on the water courts when they review an application. Moreover, there is no corresponding provision concerning the determinations to be made by the water courts.

As discussed above, the Water Quality Control Commission is charged with promulgating quality control regulations.[25] The statutes list those factors which the Commission is to consider when promulgating these regulations. However, *not* included in this list is the quality of water necessary to meet those uses to which the water has been put by senior appropriators. If this factor had been included, the argument that compliance with a discharge permit should satisfy the statutory quality requirements would be strengthened.

Two writers have advocated this approach which would give more credence to compliance with National Pollutant Discharge Elimination Standards("NPDES") in quality issues. As Gregory Hobbs and Bennett Raley explain:

> The statutes directing the court to consider water quality impacts of plans for augmentation, substitution, and exchange were adopted at a time when Colorado did not have a comprehensive water quality regulatory program, and, therefore, the water courts were called upon to provide protection for existing water uses.[26]

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23. *Id.*

24. *Id.*

25. COLO. REV. STAT. § 25-8-205 (1997).

26. Gregory J. Hobbs, Jr. and Bennett W. Raley, *Water Quality Versus Water Quantity: A Delicate Balance,* 34 ROCKY MTN. MIN. L. INST. 24-1, 24-54 (1988). Other article touching upon this subject include: Michael D. White, David F. Jankowski, David S. Taussig

> The creation of the Water Quality Control Commission added, for the first time, a regulatory body charged with the responsibility and authority to develop water quality criteria to protect uses of water. The expenditure of millions of dollars by state and private entities in the course of the adoption of stream classifications and water quality standards created, in the Commission, an administrative agency with the expertise and experience necessary to address the highly technical issues of water quality. Accordingly, the water courts should accord deference to determinations by the Commission regarding the criteria necessary to prevent injury to uses of water where the Commission has set water quality standards for the contaminant in question.
>
> The practical application of this approach in an application for approval of a plan for augmentation, substitution, or exchange would involve a consideration by the water court of whether existing stream standards, use classifications, and enforcement mechanisms address the quality-related injury asserted by the affected water right. Under this analysis, a reduction in dilution capacity of the stream would not result in a denial of the application and the proposed plan would be approved, so long as the replacement water supply will meet applicable water quality standards for downstream uses. If the proposed plan would affect uses not protected by existing classifications, or if the replacement water supply contains pollutants not regulated by the Commission, the water court should not consider the issue until it has been presented to the Water Quality Control Commission. If the Commission acts, the water court would then accord deference to the administrative decision. If the Commission declines to act, the court would consider the issue independently. This deference to the Commission preserves the Commission as the primary water quality control agency of the state. Inconsistent decisions will be minimized, and, more important, the burden of controlling the pollutant or protecting a new use would not be imposed solely on those who are before the water court.[27]

We now turn to review the decisions which have addressed quality concerns in water rights cases.

3. Existing Case Law Addressing Quality Concerns of Return Flows

In a 1986 case before Colorado's Division 1 Water Court, the Court was presented with an issue of water rights versus water quality within the context of treated sewage effluent.[28] The City of Golden sought to

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and Austin C. Hamre, *City of Thornton v. Bijou Irrigation Co.: The Thornton Northern Project*, 26 COLO. LAW. 67 (1997); Melinda Kassen, *The Burden of Maintaining Colorado's Water Quality*, 18 COLO. LAW. 23 (1989); Jan G. Laitos, *Water Rights and Water Quality: Recent Developments*, 23 COLO. LAW. 2343 (1994); Mark T. Pifher, *Quality Versus Quantity: The Continued Right to Appropriate - Part I*, 15 COLO. LAW. 1035 (1986); Mark T. Pifher, *Quality Versus Quantity: The Continued Right to Appropriate - Part II*, 15 COLO. LAW. 1204 (1986); Jan G. Laitos, *Constitutional Limits on Police Power Regulations Affecting the Exercise of Water Rights*, 16 COLO. LAW. 1626 (1987); Jan G. Laitos, *Assault on the Citadel, Part I: Water Quality Laws and the Exercise of Water Rights*, 17 COLO. LAW. 1305 (1988); Jan G. Laitos, *Assault on the Citadel, Part II: Dams, Diversions and Water Quality Regulations*, 17 COLO. LAW. 2003 (1988).

27. Gregory J. Hobbs, Jr. and Bennett W. Raley, *Water Quality Versus Water Quantity: A Delicate Balance*, 34 ROCKY MTN. MIN. L. INST. 24-1, 24-55 to 24-56 (1988).

28. In the Matter of the Application for Water Rights of the City of Golden, in

divert water out of priority from Clear Creek and to replace that water with a substitute supply derived from a variety of sources, including treated sewage effluent. Because the treated sewage effluent would be discharged into Clear Creek immediately above other points of diversion, owners of these water rights objected to Golden's application. The issue presented to the court was whether the treated sewage met the quality requirements of C.R.S. sections 37-92-305(5) and 37-80-120. Perhaps due to the novelty of the issue before it, the court issued a separate ruling solely to address the water quality issues.[29]

The treated sewage effluent was being discharged pursuant to a valid wastewater permit issued by the Water Quality Control Division as required by the rules and regulations promulgated by the Water Quality Control Commission.[30] However, the water court specifically noted that "[t]he [discharge] permit does not assure that the discharge will be of a quality that meets the requirements for which the Objector's water has normally been used."[31] The water court then went on to discuss the negative impacts of the decreased water quality and concluded that the requirements of C.R.S. sections 37-92-305(5) and 37-80-120 had not been met. Thus, this part of the application was denied.

Of particular note in the decision is the way in which the water court resolved the conflict between water rights and water quality:

> No conflict exists between this Court's determination and the determination by the Water Quality Control Division to issue a discharge permit for the [sewage treatment plant]. The Division and the Court address different issues and answer different questions, subject to different standards. The Division determines whether to allow any discharge at all by balancing competing interests on the stream. The Court determines whether to allow the discharger to divert water it would not otherwise be entitled to take by furnishing a substitute supply to users downstream. The Court considers the effects on particular water users, and applies the standards of non-injury and suitability for the normal uses of the receiving waters.
>
> A plan for augmentation is a water matter within the exclusive jurisdiction of the water judge. The Water Quality Control Division may not interfere with the jurisdiction of the Water Court or take any action that would result in injury to water rights.
>
> The uses to be protected pursuant to C.R.S. section 37-92-305(3) and (5) are the actual uses that have normally been made of the re-

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Clear Creek, Jefferson and Adams Counties, (Dist. Ct., Water Div. No. 1, Colo. 1986) (No. 83-CW-361).

29. Supplemental Findings of Fact, Conclusions of Law, Judgment and Decree, In the Matter of the Application for Water Rights of the City of Golden, in Clear Creek, Jefferson and Adams Counties, (Dist. Ct., Water Div. No. 1, Colo. 1986) (No. 83-CW-361).

30. NPDES Permit No. CO-00039 issued to the City of Golden and the Adolph Coors Company as joint permittees.

31. *Supra* note 28.

> ceiving waters even if those uses have not been decreed. The actual uses of water from Standley Reservoir include use for municipal drinking water, as well as recreation and irrigation. The decreed uses of water from Standley Reservoir include domestic, irrigation, and municipal uses . . . . The Court concludes that the [treated sewage] effluent does not meet the quality requirements of the actual or decreed uses of water from Standley Lake.
>
> As a matter of law, the degradation of water quality identified . . . constitutes injury to the legally protected rights of the Objectors.[32]

In reaching this conclusion, the water court relied on a 1983 Colorado Supreme Court case which discussed the concept of "maximum use" and limits thereon.[33]

In *Alamosa–LaJara Water Users Protection Ass'n v. Gould,* the Colorado Supreme Court wrote:

> We note that the policy of maximum utilization does not require a single-minded endeavor to squeeze every drop of water from the valley's aquifers. Section 37-92-501(2)(e) makes clear that the objective of "maximum use" administration is "optimum use." Optimum use can only be achieved with proper regard for all significant factors, including environmental and economic concerns.[34]

It is interesting to note, however, that the mandate of section 37-92-501(2)(e) is not necessarily this clear. This statutory section states that rules and regulations promulgated "shall have as their objective the optimum use of water consistent with preservation of the priority system of water rights."[35] But the language makes no reference to significant factors such as environmental and economic concerns. In fact, in the later case of *City of Thornton v. Bijou Irrigation Co.,*[36] the same court expressly stated that under the existing statutory framework, the issue of water quality is clearly subordinated to that of water appropriation.

In *Thornton,* the Colorado Supreme Court was presented with several water quality issues. The Colorado division of the Eastman Kodak Company ("Kodak") was one of many objectors to the City of Thornton's proposed Northern Project. Kodak operated a manufacturing plant on the Poudre River which utilized over one million gallons of water per day. After treating the water, Kodak discharged it back into the Poudre River pursuant to a wastewater discharge permit issued by the Water Quality Control Division. The discharge permit specified effluent limits for various chemicals in the discharge water which, in

32. *Id.* at 6 (citations omitted).

33. *Id.* at 7.

34. Alamosa-La Jara Water User's Protection Ass'n v. Gould, 674 P.2d 914, 935 (Colo. 1983).

35. COLO. REV. STAT. § 37-92-501(2)(e) (1997).

36. City of Thornton v. Bijou Irrigation Co., 926 P.2d 1 (Colo. 1996).

turn, were based in part on average low-flow values in the vicinity of Kodak's discharge point in the Poudre River. The City of Thornton sought an exchange which would divert water from the Poudre River above the Kodak plant, and return a substitute supply of water below the Kodak plant. The result would be a reduced flow near the Kodak plant which in turn would affect the average low-flow rates. Kodak argued that stricter unionized ammonia limits would then be placed on its discharge permit, which would require construction of a new treatment facility at a cost of at least nine million dollars. The Colorado Supreme Court affirmed the ruling of the trial court and held that Kodak's request constituted a request for a minimum instream flow right, a right which is forbidden by statute.[37] The court went on, however, to provide an analysis of the relationship between the appropriation doctrine and quality issues:

> From the earliest cases, Colorado courts have given at least some recognition to water quality concerns, holding, for example, that a water right does not include the right to discharge pollutants that detrimentally affect downstream users. However, beyond recognition of this general prohibition on unreasonable discharges, the system of water quality regulation in Colorado reflects a continued conflict with and subordination to the prior appropriation system.[38]

> [S]ection 25-8-104(1) [quoted *supra*] serves notice that despite the importance of water quality regulation, the legislature's primary emphasis in enacting this scheme is to maximize beneficial use and to minimize barriers to further beneficial appropriation. The result of this policy decision is essentially to focus water quality regulation on uses culminating in unreasonable discharges, as such discharges are not part of any appropriative right under common law.[39]

For better or worse, this dual system limits the ability of both the water court and the water quality control agencies to address certain water quality issues.

Implicit in the court's decision was the recognition that, in the case of discharges or substitute water supplies, the legislative scheme may protect against quality impacts by virtue of C.R.S. section 37-92-305(3). The court did not go on to address this issue because Kodak did not allege any quality impacts in the substitute supply itself (i.e., the injury alleged resulted solely from diminution in flow).[40] However, the court did address related water quality issues involving the substitute supplies affecting other objectors.

Several objectors argued that the decree would not protect their

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37. COLO. REV. STAT. § 37-92-103 (1997). This statute vests exclusive authority to appropriate minimum stream flows in the Colorado Water Conservation Board and limited the purpose for these appropriations to those necessary to "preserve the natural environment to a reasonable degree."

38. *Bijou Irrigation Co.*, 926 P.2d at 91-92 (citations omitted).

39. *Id.* at 92.

40. *Id.* at 92-93.

rights based on the requirement that the quality of the substitute flow be measured at the point of entry into the canal, rather than at the point at which the objectors diverted water for their use. The objectors contended that such measurements would not provide protection to their headgates located miles downstream of the discharge point due to a general deterioration in water quality as it moves downstream. This argument was premised on the requirement of C.R.S. section 37-80-120(3), which states that substituted water "be of a quality and continuity to meet the requirements of use to which the senior appropriation has normally been put."[41] The court explained that

> [U]nder both the statute and the regulations, the mandate of the state engineer in reviewing the quality aspects of an exchange is clear: the substitute supply must be of a quality to meet the requirements of use to which the senior appropriation has normally been put. The regulations are sufficiently broad to allow the state engineer's office to exercise its professional judgment in adopting a method of regulation that will ensure that the statutory standard is met, and the absence of more specific direction will not compromise the protective goals of the statute.[42]

Thus, the court declined to hold that water quality monitoring at the point of discharge was insufficient to ensure compliance with the statutory mandate.

4. *Quality Issues Presented in Pending Water Rights Cases*

The question left unanswered by *Thornton* is, what if return water that is being discharged pursuant to a discharge permit is meeting all effluent limits set forth in the permit? This issue is expected to be litigated early next year in an application involving the City and County of Denver.[43] This issue is also being asserted in several pending applications for diligence.[44]

One aspect likely to be raised in these pending cases is whether applicants who meet all water quality standards and otherwise comply with discharge permit requirements may rely on their compliance as prima facie evidence that the substituted water is of an adequate quality. As discussed above, this issue appears to have been addressed in the 1986 *City of Golden* water court decision in which the court held that water being discharged under a discharge permit must meet the historical use requirements set forth in C.R.S. section 37-92-305(5).[45]

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41. COLO. REV. STAT. §37-80-120(3) (1997).

42. *Bijou Irrigation Co.*, 926 P.2d at 97.

43. Concerning the Application for Water Rights of the City and County of Denver, acting by and through its Board of Water Commissioners, (Dist. Ct., Water Div. No. 1, Colo. 1997) (No. 96-CW-145).

44. *See, e.g.*, Concerning the Application for Water Rights of the Town of Castle Rock, (Dist. Ct. Water Div. No. 1, Colo. 1996) (No. 96-CW-199).

45. Supplemental Findings of Fact, Conclusions of Law, Judgment and Decree, In the Matter of the Application for Water Rights of the City of Golden, in Clear Creek,

In the pending application filed by the City and County of Denver, one objector, the City of Thornton, has recently moved for summary judgment on these very issues.[46] In this case, Denver operates an exchange by making out of priority diversions from Strontia Springs Reservoir in exchange for the discharge from the Bi-City wastewater treatment plant effluent destined for the South Platte River. It is the City of Thornton's position that the wastewater effluent does not meet the statutory quality criteria of C.R.S. section 37-80-120(3):

> [P]ursuant to C.R.S. section 25-8-104(1) [of the Water Quality Control Act], such a "discharger must comply with all of the applicable provisions of articles 80 to 93 of Title 37, C.R.S.," including C.R.S. section 37-80-120(3) under which substituted water provided in any exchange must "be of a quality . . . to meet the requirements of use to which the senior appropriation has normally been put."
>
> Consequently, mere compliance with a discharge permit does not satisfy the section 120 Quality Requirements . . . .
>
> Thornton does not here question Bi-City W[aste] W[ater] T[reatment] P[lant] discharges in conformity with its permit. Denver, however may not use the discharge permit as a shield to effectuate the exchange of clean water at Strontia Springs for Bi-City WWTP effluent unless the effluent meets the section 120 Quality Requirements.[47]

Thornton argues that Denver's attempts to: (1) make absolute its exchange, and (2) to obtain a finding of diligence should be denied.[48]

As for Denver's position, Denver has just recently moved for partial summary judgment on the issue, arguing that it is inappropriate for the water court to consider quality issues in the context of diligence proceedings and/or proceedings to make absolute a conditional water right.[49] A diligence proceeding serves a narrow function. Quite simply, the presiding officials must determine whether a holder of a conditional water right has taken the requisite steps in diligently applying the water to a beneficial use. The diligence statute does not require

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Jefferson and Adams Counties, (Dist. Ct., Water Div. No. 1, Colo. 1986) (No. 83-CW-361).

46. Thornton's Dispositive Motion Pursuant to C.R.C.P. 56(b) and 56(h) Regarding Water Quality Issues, Including Legal Authorities, Concerning the Application for Water Rights of the City and County of Denver, acting by and through its Board of Water Commissioners, (Dist. Ct., Water Div. No.1, Colo. 1997) (No. 96-CW-145).

47. *Id.* at 5.

48. Amended Statement of Opposition at 2, Concerning the Application for Water Rights of the Town of Castle Rock In Douglas County, (Dist. Ct., Water Div. No. 1, Colo. 1997) (No. 96-CW-199) (asserting a C.R.S. section 37-90-120(3) quality argument against a finding of diligence).

49. Motion For Partial Summary Judgment Pursuant to C.R.C.P. 56, Concerning the Application for Water Rights of the City and County of Denver, acting by and through its Board of Water Commissioners, (Dist. Ct., Water Div. No.1, Colo. 1997) (No. 96-CW-145).

that an applicant establish any quality standards for water which may be used for exchange purposes.[50] With respect to Denver's situation, the applicable decree at issue permitted Denver to use effluent as a source of substitute supply.[51] Denver thus maintains that injury is wholly irrelevant in diligence proceedings. Denver likewise argues that quality is not an appropriate consideration in an application to make absolute a conditional water right. Denver claims that the only element which the water court should consider is whether the water has been placed to a beneficial use, because there simply is no statutory requirement that an applicant make any quality showing on a substitute supply before a conditional right may be made absolute.[52] It is therefore Denver's position that Thornton be precluded from raising water quality issues in this pending case. In the alternative, Denver argues that even if the water court determines that quality issues may be considered, the court must then determine a host of other issues:

> To determine if the substitute water is acceptable, the court must determine which appropriation is senior. This court would then have to determine the use to which that appropriation has normally been put. What effect does a change of water right by the senior appropriator have on the required quality? What standard determine the appropriate quality? Is Thornton subject to the stream conditions when it purchased, appropriated, or changed its water rights? Is Thornton subject to equitable defenses of waiver, laches, or assumption of risk?[53]

It will be interesting to track the water court's rulings on these pending motions for summary judgment.

CONCLUSION

Pursuant to Colorado statute, substituted water shall be of a "quality and quantity so as to meet the requirements for which the water of the senior appropriator has normally been used,"[54] and substituted water "shall be of a quality and continuity to meet the requirements of use to which the senior appropriation has normally been put."[55] Juxtaposed against these requirements are the effluent requirements imposed on individual dischargers. The 1986 Division 1 Water Court decision in the *City of Golden* held that there is no true conflict under the statutory framework, and that any water quality concerns are, in effect, in addition to those requirements imposed in the administration of

50. COLO. REV. STAT. § 37-92-301(4) (1997).
51. *See* City & County of Denver v. City of Englewood, 826 P.2d 1266 (Colo. 1992).
52. *See* Taussig v. Moffat Tunnel Water & Dev. Co., 106 P.2d 363, 367 (Colo. 1940).
53. *Supra* note 46, at 5-6.
54. COLO. REV. STAT. § 37-92-305(5) (1997).
55. COLO. REV. STAT. § 37-80-120(3) (1997).

water rights.[56] However, the 1996 Colorado Supreme Court case of *City of Thornton v. Bijou Irrigation Co.* acknowledged a conflict in the statutory framework, but ultimately concluded that the prior appropriation system must take precedence.[57] Thus, whether a conflict is perceived or not, the result will most likely be the same: the historical use requirements established under C.R.S. section 37-92-305 (5) appear to be in addition to any effluent limitations established in a discharge permit. Mere compliance with a discharge permit is evidence that substituted water is of adequate quality, but is not conclusive proof in and of itself.

56. Supplemental Findings of Fact, Conclusions of Law, Judgment and Decree, In the Matter of the Application for Water Rights of the City of Golden, in Clear Creek, Jefferson and Adams Counties, (Dist. Ct., Water Div. No. 1, Colo. 1986) (No. 83-CW-361).

57. *Bijou Irrigation Co.*, 926 P.2d 1, 91 (Colo. 1996).

ERODING THE *WINTERS* RIGHT: NON-INDIAN WATER USERS' ATTEMPT TO LIMIT THE SCOPE OF THE INDIAN SUPERIOR ENTITLEMENT TO WESTERN WATER TO PREVENT TRIBES FROM WATER BROKERING*

KAREN CRASS ‡

INTRODUCTION

In the western states, access to water is power. Indian tribes currently are entitled to enough water to tie up all the unallocated water of the west.[1] Transfer of Indian water rights for on or off-reservation uses, such as mining and natural resources development, could put tribes in a position of "brokering" much of the nation's western water supply.[2] States and non-Indian water users are concerned that the legal possibility exists that large quantities of water will be consumptively used or leased by Indians to the exclusion of junior appropriators in the state appropriations system.[3] Yet, there exists an immediate market

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1. Telephone interview with Craig Bell, Executive Director, Western States Water Resources Council regarding new study of western water management (unpublished report) (Feb. 6, 1997).

2. Indian water rights may well exceed seventy-five percent of the flows in the Missouri River. *Hearings on Transfer of Reclamation Facilities Before the Water and Power Subcommittee of the House Committee on Resources,* 104th Cong., 1st Sess. 40-90 (1995) (testimony of Susan M. Williams, Counsel for Mni-Sose Intertribal Water Rights Coalition); "There is enough irrigable land on the Ute Reservation to dry up all of the non-Indian irrigation on the Mancos Valley." *Hearings on Energy and Water Appropriations Before the Subcommittee on Energy and Water Development of the Committee on Appropriations,* 103d Cong., 1st Sess. 635-37 (1994) (testimony of Fred V. Kroeger); The *Winters* claims of the Navajo nation alone could arguably dry up the San Juan River Basin. Telephone Interview with Mr. John Leeper, Navajo Department of Water Resources (Feb. 13, 1997).

3. In the 1980s, there was a large demand for Missouri River water for coal slurry pipelines. At one time the tribes were offered $3.6 million for 20,000 acre feet annually. States efforts to prevent unregulated tribal water marketing is based on the fear tribes will "sell to the highest bidder." Since tribal water rights are not subject to the state system, states are also concerned about the "harm" that will come to downstream

for tribal water both on and off reservation.[4] However, tribes have yet to receive the congressional authorization necessary to allow them to capitalize on this opportunity for economic development through leasing their entitlement to water, despite the fact that tribes have the full legal right pursuant to the *Winters* doctrine to utilize their water entitlement in any way the tribe chooses.[5]

Tribes' superior right to water is threatened. History has shown that tribes cannot always rely on the government or the courts to protect vested rights to tribal property or natural resources, especially when those rights affect the economic development of the country.[6] States are attempting to limit tribal water rights by casting doubt on the actual intent behind the *Winters* right and by asking courts to limit the scope of the entitlement when making water allocation decisions. The Wyoming *Big Horn* cases, the most recent full adjudication of tribal water rights, provide a good example of the fact that courts may be willing to ignore principles of tribal sovereignty, the Supremacy Clause, canons of treaty construction, the *Winters* doctrine, and case precedents to limit tribal water interests in favor of non-Indian water users in the western states, where access to water is the key to economic development and growth.[7]

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users when Indians start taking their share. *Hearings on HR 5098 Before House of Representatives Natural Resources Oversight Investigations,* 103d Cong., 2d Sess. (1994) (statement of Congressman Pat Williams).

4. Water-short states are beginning to admit that paying for unused tribal water is sometimes the only way to obtain enough water for growing municipalities. States like California and Nevada are fast approaching limitations allocated by Congress in the 1929 settlement agreement allocating water of the Colorado River among states. Such states are currently investigating leasing water from tribes. Telephone Interview with Sammy Maynes, Attorney for the Southern Ute Tribe (Mar. 19, 1997).

5. The long-standing rule has been that tribes could decide how to use their water entitlement. The *Big Horn III* case, discussed below, upset this precedent. *In re* The General Adjudication of All Rights to Use Water in the Big Horn River System and All Other Sources, 835 P.2d 273 (Wyo. 1992).

6. Joseph R. Membrino, *Indian Reserved Water Rights, Federalism and the Trust Responsibility,* 27 LAND & WATER L. REV. 1, 12 (1992). Membrino notes that the turn of the 20th century was marked by massive expropriation of Indian lands and the turn of the 21st century is the era when the Indian tribes risk the same fate for their water resources.

7. The adjudication of all the water rights in the Big Horn River system consisted of a series of three cases and fifteen years of litigation: *In re* The General Adjudication of All Rights to Use Water in the Big Horn River System and All Other Sources, 753 P.2d 76 (Wyo. 1988) ("Big Horn I") (involving Indian reserved water rights for the Shoshone and Northern Arapaho Tribes of the Wind River Indian Reservation); *In re* The General Adjudication of All Rights to Use Water in the Big Horn River System and All Other Sources, 803 P.2d 61 (Wyo. 1990) ("Big Horn II") (dealing with claims of non-Indian successors to allotments on the Wind River reservation); and *In re* The General Adjudication of All Rights to Use Water in the Big Horn River System and All Other Sources, 835 P.2d 273 (Wyo. 1992) ("Big Horn III") (regarding the regulation and administration of the reserved rights awarded in *Big Horn I*). The *Big Horn III* decision is most germane to this paper—erosion of the *Winters* right. In *Big Horn III,* the Wyoming Supreme Court held that tribes could not determine for themselves new uses of their quantified water rights and that a change of use was subject to state regulation. *Big Horn III* provides an example of state courts protecting state water rights at the expense of tribes and in so doing threatens tribes that seek quantification of water

This article maintains that tribes should assert their full entitlement to water throughout the West while the law remains in their favor. If exercised properly, tribal reserved water rights could mean political power and economic gain for Indians and provide a last chance for them to maintain authority and control of a valuable resource to which they have vested title.[8] Private, natural resources developers would find access to substantial Indian water rights attractive and would be willing to pay a premium price for securing the rights necessary to implement complex resource development projects.[9]

WINTERS RIGHTS

Indian reserved water rights are federally created under *Winters v. United States,*[10] in which the Supreme Court held that Indian water rights were impliedly reserved for the benefit of the Indians at the time of the reservation's creation in sufficient quantity to fulfill the purpose of the reservation.[11] Over the next sixty years, the Supreme Court expanded the scope of the reserved rights doctrine to include non-Indian federal lands. *Arizona v. California, ("Arizona I"),*[12] while dealing

rights in court by casting a cloud of uncertainty over the previously secure *Winters* right.

8. During the 19th century, Indian and non-Indian controversies revolved around land-related issues. In this century, water issues are of fundamental importance to tribes. Tribal governments are asserting their rights to water to protect their futures. Steven J. Shupe, *Indian Tribes In The Water Marketing Arena,* INDIAN WATER 1 (1989).

9. The primary fear regarding Indian entitlement to western water is that private industry could afford to purchase superior and substantial quantities of water for developing natural resources and generating electrical power apart from the States' regulatory systems. The concern is that municipalities will have difficulty obtaining adequate water supplies if forced to bid for tribal water against private natural resources developers. Telephone Interview with Attorney Tom Schipp (Mar. 18, 1997). Also significant is the fact that contract renewal for major power generating plants are now subject to § 107 review of the Endangered Species Act, 16 U.S.C. §107 (1973), which can become complex and expensive, making obtaining tribal water an attractive alternative to compliance with the Endangered Species Act requirements. Telephone Interview with Sammy Maynes, Attorney for the Southern Ute Tribe (Mar. 19, 1997).

10. Winters v. United States, 207 U.S. 564 (1908). Winters and other non-Indian settlers sought to dam the Milk River upstream of the Fort Belknap Indian Reservation. The United States argued on behalf of the Indians that Winter's actions interfered with irrigating reservation lands. The Supreme Court held that, although the treaty establishing the reservation was silent on the matter, it had impliedly reserved a sufficient quantity of water for the Indians to irrigate their land. Establishing the priority date at the time the reservation was created effectively granted tribes a reserved right superior to most non-Indian interests that were established pursuant to the state system. There are a few tribes that claim aboriginal water rights, and, when upheld, these rights displace *Winters* rights in priority. The claims to entitlement differ in that the *Winters* right is based upon a grant of water from the United States to tribes and the aboriginal title is a right reserved by tribes, predating and existing apart from the *Winters* right. Jessica Bacal, *The Shadow of Lone Wolf: Native Americans Confront Risks of Quantification of Their Reserved Water Rights,* 12 U. BRIDGEPORT L. REV. 1, 21 (1991).

11. *Id.*

12. Arizona v. California, 373 U.S. 546 (1963). The case began as a dispute among

primarily with non-Indian federal lands, proved significant for three reasons, because it reaffirmed the Court's earlier interpretation of the *Winters* right, quantified it as "enough to irrigate all the practicably irrigable acreage on the reservations"[13] and, most importantly, implied that the right was expandable as it was "intended to satisfy the present and future needs of the reservation."[14]

In making a determination of reserved water rights, courts must first consider the purposes of the reservation[15] and then reserve enough water for fulfilling those intended purposes. The real battle between the tribes, non-Indian users, and states revolves around this determination of the "purposes" of reservations. Since each reservation was the result of a separate negotiation, courts must evaluate each treaty separately in making these decisions,[16] and the canons of treaty construction mandate that courts make these conclusions in a light most favorable to tribes.[17]

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several western states over each state's share of the waters of the Colorado River. Exercising its trust responsibility, the United States intervened on behalf of the five Indian tribes having claims to the waters of the Colorado River. The Court upheld the *Winters* doctrine, reaffirming that Congress intended to reserve enough water to satisfy the future as well as the present needs of the Indian Reservations—enough to irrigate all practicably irrigable acres. The Court rejected the state's arguments that the measure should be made according to the number of Indians living on the reservation, stating that estimating future Indian populations and needs would be wholly speculative.

13. The *Arizona* Court established the "practicably irrigable acreage" standard ("PIA") used to quantify the Indian water right. PIA is calculated by first measuring the arable land on the reservation and determining if the land is irrigable from a purely engineering standpoint. Then the currently available technology is assessed to determine if the land could be farmed. Finally, the economic feasibility of the process is assessed. If the annual benefits exceed costs, the land is considered practicably irrigable. In adopting the PIA standard, the Court explicitly rejected Arizona's proposal that it adopt a "reasonably foreseeable needs" standard which would have been based upon the number of Indians living on the reservation. *Arizona*, 373 U.S. 546, 599. The PIA standard was later upheld by the Supreme Court in *Wyoming v. United States*, 488 U.S. 1040 (1989).

14. *Arizona*, 373 U.S. at 599. For full discussion of the controversy surrounding the practicality of the PIA standard, *see* Martha C. Franks, *The Uses Of The Practicably Irrigable Acreage Standard In The Quantification of Reserved Water Rights*, 31 NAT. RESOURCES J. 549, (1991).

15. *Arizona*, 373 U.S. at 594. While the purpose of the reservation varied over time, the pervasive and persistent theme in Indian policy has been the development of economic viability of the reservation. Jessica Bacal, *supra* note 10, at 21.

16. Each treaty is examined in the context of the situation at the time it was established in an effort to establish the intent of the parties at the time. These are crucial decisions because the court's determination of "purpose" is directly related to the size of the tribe's entitlement. *See Arizona*, 373 U.S. at 594. States are attempting to limit tribal water uses by asking courts to hold that allocations of water pursuant to the *Winters* doctrine may only be used on the reservation and only for those uses that fulfill the "purposes of the reservation." *But, see, Big Horn III*, 835 P.2d 273 (court holding tribes could not convert their agricultural water to instream flow because instream flow could not have been contemplated by the treaty establishing the reservation).

17. Canons of treaty construction govern the interpretation of Indian treaties state: First, ambiguities must be resolved in favor of the Indians; second, Indian treaties must be interpreted as the Indians would have understood them; and third, Indian treaties must be construed liberally in favor of the Indians. STEVEN L. PEVAR, THE RIGHTS OF INDIANS AND TRIBES, THE BASIC ACLU GUIDE TO INDIAN AND TRIBAL RIGHTS (2d ed.1992)

Narrowly interpreted, use of reserved water would be limited to the boundaries of the reservation,[18] but this could limit tribes to an agrarian lifestyle on reservation land much of which is not suitable for agriculture.[19] On the other hand, broadly interpreted, Indian entitlement means enough water to fulfill the economic development of the tribe,[20] including any use that could promote progress and economic development.[21] Since most treaties contain language suggesting the United States intended reservations to become a permanent homeland for tribes and that tribes should become self-sufficient, the door is left open for courts to allocate water for all uses that promote economic development of tribes.[22] Opponents of such broad interpretation argue it is too open-ended—that Congress could not possibly have envisioned such an expansive right.[23] Others believe that limiting reserved water use to the reservation is equivalent to preventing tribes from using its entitlement at all.[24] Forcing tribes to rely on completion of federally funded water delivery systems in order to put their water entitlement to use means non-Indian users continue to utilize water that belongs to the tribes.

The uncertainty of the *Winters* right is incompatible with the western doctrine of prior appropriations which governs water allocation in most of the western states.[25] In the prior appropriations system the application of water to a beneficial use perfects the right, sets its priority date and quantifies its amount.[26] A user's right can be lost through

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at 40.

18. *Big Horn I*, 753 P.2d at 119 (Thomas, J., dissenting).

19. Wyoming's argument in attempting to limit the scope of the *Winters* right in *Big Horn III*, 835 P.2d 273 (Wyo. 1992).

20. Broad interpretation includes all uses of water required for a "permanent homeland." United States v. Adair, 723 F.2d 1394, 1410 (9th Cir. 1984), *cert. denied*, 460 U.S. 1015 (1983). This interpretation is consistent with Indian policy that supports tribal autonomy and self-sufficiency of Indian tribes.

21. District Judge Hanscum would allow other uses including the sale of water off the reservation where the activity contributed to the progress and development of the Indian homeland. *Big Horn III*, 835 P.2d 273 (Hanscum, J., dissenting).

22. This line of reasoning was used in United States v. Washington, 506 F. Supp. 187 (W.D.Wash. 1980). Here the court found an intent to "civilize" the tribe and determined that fishing was crucial to meeting the needs of the tribe. A broad interpretation of the treaty gave Indians a superior right to take a greater share of the fish at the expense of non-Indian commercial fishermen. *See* Eric Eisenstadt, *Fish Out of Water: Setting a Single Standard for Allocation of Treaty Resources* 17 AM. INDIAN L. REV., 209 (1992).

23. *Supra* note 19.

24. Membrino, *supra* note 6, at 28. Membrino and others argue that tribes are forced to forego the full entitlement of their water rights when they are not allowed to utilize their water off-reservation. When limited to on-reservation use only, tribes must wait for federal water delivery projects which often are promised but never delivered or delivered many years after the fact, resulting in foregone profits for tribes on water that is rightfully theirs.

25. A prior appropriation is granted when a person applies a particular quantity of water to a beneficial use, and those rights continue so long as the beneficial use is maintained. DAVID H. GETCHES, WATER LAW, WEST NUTSHELL SERIES 97-104 (2d ed. 1990).

26. *Id.* at 97.

nonuse or abandonment.[27] Pursuant to *Winters*, a right to water exists with the date of the establishment of the reservation as its priority date and continues to exist regardless of whether it is presently being used or not,[28] meaning it is generally superior to those non-Indians who settled and obtained their water rights through the state allocation system after most reservations were established. The effect of *Winters* in the West is that non-Indian water entitlements remain subject to future assertion of a superior Indian reserved right. Because the *Winters* right exists apart from the state system and because the right can be asserted by tribes at any time, the *Winters* right usurps the predictability of the "first in time, first in right" notion of western water use. Where an unquantified Indian entitlement remains, the amount of water to which tribes have a legal right remains questionable. The state system of allocating unappropriated water is forced to operate under the uncertainty of these "uncalculated" quantities without knowing when, if ever, they will be put to use. In the meantime, the risk is high for non-Indian investment in water development that may be discontinued once a tribe decides to assert its right to its water entitlement. When the tribal water right is quantified, the state can better calculate how much of the river remains available for allocation to new or different beneficial uses.[29]

EROSION OF THE WINTERS DOCTRINE

The *Winters* Doctrine is being attacked by states and non-Indian water users. Water-short western states are attempting to protect water rights of non-Indian users by asking courts to limit the scope of the right: (1) by advocating that courts should balance the Indian entitlement with that of the non-Indian user; (2) by placing limits on the right[30] by being "sensitive" to the surrounding water rights which will be impacted; and (3) by attacking the feasibility of proposed tribal water uses to diminish the amount of the entitlement.[31] The fact that

27. *Id.* at 90.

28. *Winters*, 207 U.S. at 564.

29. As long as tribal claims to western rivers remain unquantified, states will continue to overappropriate the rivers. The result is that water-short states continue to use for free the water tribes have a legal claim to and from which tribes receive no benefit. For example, California's uses are expected to go beyond 5.2 maf for 1996, exceeding its 4.4 maf per year entitlement to the Colorado River by some 800,000 acre-feet. California is able to get that water largely because of the Indian entitlement that goes unused—but at no cost to California and with no benefit to the tribes. Secretary of the Interior, Bruce Babbitt, Address at the *Colorado River Water Users Association* (Dec. 19, 1996) (on file with author).

30. For example, bills have been introduced in the Congress that would stipulate a short period of years in which tribes must exercise their reserved rights and insisting that water use outside the reservation be subject to state regulation. Susan D. Brienza, *Wet Water vs. Paper Rights: Indian and Non-Indian Negotiated Settlements and Their Effects*, 11 STAN. ENVTL. L. J. 151 (1992).

31. In Reynolds v. Lewis, 545 P.2d 1014, 1015 (1976), the district court rejected the

courts are entertaining these types of arguments aimed toward restricting the *Winters* right poses huge risks to tribes which have not yet quantified their reserved rights.[32]

In *Big Horn III*, the State of Wyoming unsuccessfully argued that the *Winters* doctrine is a mere court "fiction" in an effort to convince the court that the doctrine was not a universal right of entitlement to water for all Indians and that the doctrine should not be applied equally to all reservations.[33] Wyoming asserted Congress had different ideas in mind when the Wind River Reservation was established and the legislative history of the reservation suggests Congress intended it should obtain its water rights through the state appropriation system, and, therefore, the *Winters* entitlement was not applicable.[34]

Opponents also argue that federal reserved water rights should be determined with "sensitivity" to the surrounding water rights which will be impacted, a balancing that would have the effect of minimizing reserved rights to a "minimum amount possible to support reservation purposes." States rely on the following three Supreme Court cases to support the "sensitivity" argument: *Cappaert v. United States*;[35] *United States v. New Mexico*;[36] and *Washington v. Washington State Commercial Passenger Fishing Vessel Association*.[37]

States quote the *Cappaert* statement that the reserved rights doctrine "reserves only that amount of water necessary to fulfill the purpose of the reservation, no more" to support the argument that tribal reserved rights should be quantified to a "minimal need" standard.[38] In *United States v. New Mexico*, the Court carefully considered a federal agency's asserted water right and the specific purposes for which the land was reserved, implying that the federally reserved water right should be applied with sensitivity to its impact on those who have ob-

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tribe's claims on the grounds that they failed to prove the economic feasibility of the proposed irrigation projects and instead awarded the tribe a population-based award with no award for future agriculture—contrary to the *Winters* promise of enough water for future uses and despite the Supreme Court's express rejection of a "population based" standard in *Arizona I*.

32. Tribes that engage in litigation of *Winters* claims can no longer be certain of what standard courts will use to measure the entitlement or how broad or how narrow the purpose of their reservations will be interpreted by courts. Depending on the court, tribes could win a full *Winters* award or they could be awarded "enough to meet minimum needs." It should be noted that the tribes on the Wind River Reservation in Wyoming chose not to appeal the *Big Horn III* decision because of these concerns. Interview with James Merrill, Attorney for the State of Wyoming in *Big Horn III* (Feb. 6, 1997).

33. *Big Horn III*, 835 P.2d at 273; Interview with James Merrill, Attorney for the State of Wyoming in *Big Horn III* (Feb. 6, 1997).

34. Interview with James Merrill, *supra* note 33.

35. Cappaert v. United States, 426 U.S. 128 (1979) (Court considering the federal reservation of water rights for a national monument).

36. United States v. New Mexico, 438 U.S. 696 (1978) (involving water rights for national forests).

37. Washington v. Washington State Commercial Passenger Fishing Vessel Ass'n, 443 U.S. 658 (1979) (Court applying a "need based" analysis for quantifying the measure of the Indians' entitlement to take fish both on and off the reservation).

38. *Cappaert*, 426 U.S. 128, 141 (1976).

tained water under state permits.[39] In *Washington*, the Court required that Indians show a "need" for the full amount requested,[40] opening the door to arguments that the Supreme Court sanctions placing a "need based" ceiling on the allocation of a scarce resource between Indian and non-Indians.[41]

It is important to note that none of the three cases that states use to erode the *Winters* right address the issue of Indian reserved water rights. Both *Cappaert* and *New Mexico* deal with water reserved for non-Indian, federal reservations, and the *Washington* case deals with allocation of fish, making practicably irrigable acreage ("PIA") inapplicable. Therefore, tribes should argue that the PIA standard continues to govern quantification of the *Winters* right, pointing out that it was upheld in the *Big Horn* adjudication, the most recent Supreme Court decision with respect to quantification of Indian water rights.[42]

THE BIG HORN CASES

The Wyoming *Big Horn* cases are significant because they represent a change in what had been a well established trend of courts broadly interpreting the *Winters* right when determining the purpose of reservations, favoring allocating water for uses that would economically advance tribes and where the particular use plays a central and crucial role in the life and economy of the tribes.[43] In *Big Horn I*, the Wyoming Supreme Court disagreed with the Special Master's Report, accepted in part by the district court, that the Wind River Reservation had a "homeland" purpose which typically includes agriculture.[44] The

39. *New Mexico*, 438 U.S. 696, 700-03 (1978). The case was the first to establish the notion that water should only be reserved for the "primary" purposes of the reservation. Water for all other "secondary" uses should be obtained through the state system when the Court stated that "agencies administering federal reservations have recognized Congress' intent to acquire under state law any water not essential to the specific (primary) purposes of the reservation." This dictum has been used to limit the amount of water reserved for federal reservations and to suggest that the Supreme Court supports a "balancing" of competing interests with regard to the implied reservation of water.

40. *Washington State Commercial Passenger Fishing Vessel Ass'n*, 443 U.S. 658 (1979).

41. This need based approach could be used to tie resource allocation to population of the reservation which would be significantly less than the PIA allocation. The measure of the right could also be diminished by decrease in population on the reservation but the measure once quantified would not be subject to increase. This method of measuring the reserved right cannot legally be applied to tribal reserved water rights as it ignores the principles of the *Winters* doctrine which governs Indian water rights.

42. *Big Horn I*, 753 P.2d 76 (Wyo. 1988).

43. Colville Confederated Tribe v. Walton, 752 F.2d 397 (9th Cir. 1981) (court determining creation of reservation impliedly reserved enough water for maintaining man-made trout lake where tribe relied upon fishing and irrigation for survival).

44. *Big Horn I*, 753 P.2d 76 (Wyo. 1988), *cert. granted in part*, 488 U.S. 1040, 109 S.Ct. 863, 102 L.Ed.2d 987 *cert. denied in part*, 492 U.S. 926, 109 S.Ct. 3265, 106 L.Ed. 610 (1989), *affirmed*, Wyoming v. United States (Big Horn II) 492 U.S. 406, 109 S.Ct. 2994,

Master applied a PIA standard, considered the tribes' proposed irrigation projects and their economic feasibility, and recommended an award to the Shoshone and Arapaho Tribes of the Wind River Reservation totaling 477,292 acre-feet per year as well as some smaller reserved awards for non-agricultural uses.[45] The Wyoming Supreme Court refused the "homeland" purpose in favor of "agricultural," thereby eliminating the Master's allocation of reserved rights for uses other than agricultural.[46] The court severely restricted the *Winters* rights by imposing state regulation on tribal water and placing a prohibition of the export of water off the reservation.[47] Significantly, the court refused to find a reservation of water for mineral and industrial development. The overall effect was deterrence of natural resource development through elimination of large quantities of water that could be available for mineral development projects.[48] Affirmed by the U.S. Supreme Court, *Big Horn I* essentially sanctioned a trend toward "shrinking" the *Winters* right, thereby placing tribes on notice that adjudication for their legal entitlement to western water was risky at best.[49]

The *Big Horn III* case proved devastating to tribes when the Wyoming Supreme Court limited the *Winters* right further by stating that Indians could not change their future water right without regard to state water law.[50] Limiting use in this way means tribes are not free to reallocate water previously used for agriculture to other uses such as instream flow or for natural resources development projects that might prove better for tribes economically. The *Big Horn III* decision represents an unprecedented state intrusion on tribal sovereignty in the water arena, serving again to put tribes on notice of just how desperate states are to prevent Indians from gaining any control in the western water market.[51]

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106 L.Ed.2d 342 (1989). *Big Horn I* was on appeal from the district court's acceptance of the Special Master's Report that recognized the much broader "homeland" purpose and awarded Indians water for irrigation, stock watering, fisheries, wildlife and aesthetics, mineral and industrial, and domestic, commercial, and municipal uses.

45. Special Master's Report, (Dec. 25, 1981), Supplemental and Final Special Master's Report, (June 1, 1984) (Wyo. 1977).

46. *Big Horn I*, 753 P.2d 76, 96 (1988). The Wyoming Supreme Court ignored the language of the *Winters* Court where *Winters* implied that the "arts of civilization" were among the intended purposes of the Indian reservation. Regarding what standard to use to measure the right, the Court decided that *Cappaert, New Mexico,* and *Washington* had implemented a "needs based" test but that these cases had not overruled the PIA standard.

47. *Id.* By determining that Congress had no other purpose in mind but to convert Indians to agrarian people, the Wyoming Supreme Court upheld limiting water to on-reservation agricultural uses. No case law exists to support such limitations on use of the quantified reserved right.

48. Some argue states are protecting sources of water for municipal use by asking courts to limit the tribes entitlement in this way. Telephone interview with David Getches, Professor, University of Colorado, Boulder, Co. (Apr. 3, 1997).

49. *Big Horn I*, 492 U.S. 406, *rehearing denied*, 492 U.S. 938.

50. *Big Horn III*, 835 P.2d 273, 282 (1992).

51. Despite the fact that tribes' *Winters* rights were trammeled by the *Big Horn III* decision, the Wind River Indians chose not to appeal this decision to a U.S. Supreme Court that did not appear to be any more sympathetic to their cause than the Court

QUANTIFICATION

Today, quantification of tribal water rights is desirable for both tribes and for states. From the tribal perspective, once reserved rights are quantified, tribes can move toward beneficially utilizing their fair share of the waters traversing their reservations.[52] Quantification transforms the *Winters* right from a "notion" of an entitlement to a contract for a specified amount of water which tribes can use for their benefit or as a tool for negotiation with states and other interested users.[53] Once quantified, it is less likely that the U.S. government can neglect to consider tribal allocations when considering federal water projects for non-Indian uses.[54] For non-Indian interests, unquantified Indian reserved rights means more water remains available for allocation by states for new and different uses and in many instances non-Indians continue to use the Indian entitlement for free.[55]

Some risks exist for tribes considering quantification: (1) tribes are wary of state enthusiasm for removing the cloud of the Winters rights;[56] (2) quantification places limits on that ability to increase the amount of water claimed;[57] and (3) once quantified, the Supreme Court held

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that affirmed the *Big Horn I* decision. Therefore, *Big Horn III* does not have binding effect on courts outside Wyoming, but that does not diminish its damaging impact on Indian water negotiations.

52. For California alone, each year tribal water rights went unquantified meant 300 billion more gallons of water for the state. Susan D. Brienza, *supra* note 30, at 178.

53. Colville Confederated Tribes v. Walton, 647 F.2d 42 (9th Cir. 1981), *cert. denied*, 454 U.S. 1092 (1981) (permitting Indians to determine how to use reserved water is consistent with the general purpose of the creation of an Indian reservation); once quantified, tribal "paper" rights become tools for negotiating with water-short cities. For example, California cities have been willing to pay for the tribal allocations in federal projects not yet in use. Tribes have also been allowed to trade their unused allocations in federal projects not yet deliverable to tribes for cash. Peter W. Sly, *Urban and Interstate Perspectives on Off-Reservation Tribal Water Leases*, 10 WTR. NAT. RESOURCES & ENV'T 43, 45 (1996).

54. During the major water development era in the West pursuant to the Reclamation Act of 1902, 43 U.S.C. §391, Indian entitlements to water were essentially ignored. U.S. National Water Commission, Water Policies for the Future-Final Report to the President and Congress of the United States at 474 (1973). The result of the federal government's failure to protect tribal water is that most rivers in the West have been overappropriated.

55. Non-Indian ranchers and farmers rely on availability of unused tribal water for irrigation for agriculture. Cities and municipalities surrounding reservations typically utilize water that is actually allocated but unused by tribes. *Hearings Before the Subcommittee on Energy and Water Development Committee on Appropriations*, 103d Cong., 2d Sess. 2307-23 (1994) (statement of Ron Pettigrew, President, and Steve Harris, Secretary, Board of Directors of Animas-La Plata Water Conservancy District).

56. Bacal, *supra* note 10, at 3. This urgency on the part of states to settle water rights issues is viewed by some Indians as another attempt at usurpation by non-Indians of Indian resources.

57. Pevar, *supra* note 17, at 218. The *Winters* right allows tribes to utilize as much water as is necessary to support the purpose of the reservation for now and into the future. The amount of the *Winters* entitlement may increase over time if the needs of the reservation increase. However, once quantified, tribes may not increase their entitlement.

that tribes may not ask that those cases be revisited.[58]

The extraordinary cost of quantification of water rights has been a major hindrance to tribes. In the past, it made little sense for tribes to spend the money litigating the quantification issue only to win an award of water having little value to tribes which lacked capital to develop the right. The federal government's history of uncompleted water storage and delivery systems served as a disincentive for quantification.[59] However, today, with nearly every river in the West overappropriated[60] and the value of available water in the market rising, quantification of reserved rights makes economic sense for tribes that may want to establish themselves as a broker in the western water market.[61]

WATER BROKERING

Since tribes have strong legal claims to an enormous share of the waters of the West,[62] tribal water leasing could have a significant economic impact on non-Indian uses.[63] Indian claims to water in the West

58. Arizona v. San Carlos Apache Tribe, 463 U.S. 545, 571 (1983).

59. Fulfillment of the reserved rights of the five tribes with water interests in the Colorado River Basin is based upon completion of the Animas–LaPlata Project which has been delayed since its authorization in 1968. Tribes continue to wait for the federal government to fulfill a promise ratified by Congress in 1988.

60. For example, the Colorado River system is overappropriated. The Compact apportionment was made in 1922, when only 16 years of record were available to determine the amount of annual flow—unfortunately these were relatively high flow years. Compact negotiators believed they were dealing with an annual average supply in excess of 17 maf. The result was an apportionment of Colorado River water totaling 16 maf, when actual average annual flow is now estimated at 15 maf or less. *Hearings on Current Management Issues in the Lower Basin of the Colorado River Before The Water And Power Subcommittee Of The Senate Energy And Natural Resources Committee,* 103d Cong., 2d Sess. 15-30 (1994) (statement of Elizabeth Ann Reike, Assistant Secretary-Water Science Department of the Interior).

61. For the first time ever, in 1996, the demand for water in the Lower Basin of the Colorado River exceeded the Basin's basic apportionment. Demand is expected to continue to regularly exceed available unallocated water as consumption in each of the lower basin states has been growing. These lower basin states are looking for available unused water for purchase to meet their growing needs. California is meeting short term deficits through voluntary agreements by farmers to forego use of river water during periods of shortage. These same opportunities are available for tribes once they know how much water is legally available to them. Secretary of the Interior, Bruce Babbitt, *supra* note 29.

62. *Hearings Before Subcommittee On Water and Power Committee on Energy and Natural Resources,* 103d Cong., 2d Sess. 176 (1994) (testimony of David H. Getches that only about one million acre-feet of the tribes' entitlement to the Colorado River had been quantified through adjudication).

63. The *Winters* claims of the Navajo Nation alone could dry up most of the west. The Navajos unquantified claims include: Little Colorado River (water negotiations continue); San Juan River (major Navajo claims remain unadjudicated); Mainstem Colorado River(The Navajo Nation has yet to submit a claim on the Colorado River (mainstem) and its water rights remain unquantified); Rio San Jose and Zuni Rivers (adjudications pending). *Navajo Nation Drought Contingency Planning Study, Phase I,* De-

have enormous potential to disrupt existing uses. If just the Navajo rights alone were ever fully adjudicated, courts could award the Navajos an estimated two million acre feet of water per year.[64] The mere threat of the existence of such an enormous consumptive right interferes with full development of a state's water resources and conflicts with huge capital investments made by non-Indians in the same water supply. Obtaining enough available water for non-Indian uses could pose a significant challenge. On the San Juan River alone, the major stakeholders and those that would be impacted most are coal, natural gas, and power generators.[65]

Tribes base their claims that they have the legal right to decide for themselves how to utilize their entitlement on principles of treaty construction which indicate that *Winters* awards should not be restricted by federal or state regulation unless the right is expressly abrogated by Congress.[66] Congress has not abrogated tribal authority over regulation of water use, therefore, states should have no authority over how tribes utilize their water entitlement.[67]

Clearly, tribes have the right to lease unused water rights to non-Indian users on the reservation.[68] Courts have interpreted the general statute authorizing Indians to lease reservation land to include the authority to lease water on-reservation.[69] Authorizing tribes to market

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partment of Water Resources Management, Division of Natural Resources, Navajo Nation U.S. Bureau of Reclamation, Lower Colorado Region, Grand Canyon Area Office, (1996). The Colorado Ute Tribes agreed to forego *Winters* claims on many of the streams that cross the reservations in exchange for storage in the Animas–LaPlata Project to be built by the federal government, *supra* note 59. Without this agreement, tribes will be forced to assert the full *Winters* rights. On just the La Plata River alone, the tribes have a decree for over 60,000 acre-feet while the annual flow of the river is only 39,000 acre-feet per year. Tribes have refused to accept money in lieu of water as settlement of their water rights. Litigation over these claims will bankrupt the states, the tribes, and the federal government. Telephone Interview with Mr. John Leepers, Navajo Department of Water Resources (Feb. 13, 1997); testimony of Fred V. Kroeger, *supra* note 2.

64. Telephone Interview with Mr. John Leeper, Navajo Department of Water Resources (Feb. 13, 1997).

65. *Contingency Planning Study*, Appendix A, *supra* note 63.

66. United States v. Winans, 198 U.S. 371, 381 (1905). For full discussion of implication of treaty construction rules on *Winters* doctrine *see* Susan M. Williams, *Indian Winters Water Rights Administration: Averting New War*, 11 PUB. LAND L. REV. 53 (1990).

67. Tribes argue that they have the right to utilize, manage, and control their own water resources—including the authority to market the water to whomever they choose. Indians assert that this is the key to tribal autonomy and self determination for Indians in the western states. *Oversight Hearing On The Lower Colorado River Before the Subcommittee on Water and Power*, 103d Cong., 2d Sess., 160 (1994) (testimony of the Honorable Daniel Eddy, Jr. Tribal Chairman of the Colorado River Indian Tribes).

68. Colville Confederated Tribes v. Walton, 647 F.2d 42, 48, (held "when a tribe has a vested property right in reserved water, it may be used in any lawful manner"); *but, see Big Horn III*, 835 P.2d 273 (Wyo. 1992) (Wyoming Supreme Court refusing to allow tribes to dedicate a portion of their reserved right to instream flow).

69. 25 U.S.C. §415 (1955) has been interpreted as pertaining to tribal water marketing. It expressly addresses tribal lands, giving tribes broad authority to lease their lands with the prior approval of the Secretary of the Department of the Interior. No court has decided whether this statute also governs leasing water separately from the land. *Id.* The Department of the Interior has invoked §415 as providing congressional

water provides opportunity for Indians to gain financial advantage from their *Winters* rights without impacting the federal budget, while providing convenient access to much needed water for more economic resource development.[70] A few tribes have bargained with states under compacts or settlement agreements to market water outside the reservation, but most states remain opposed to tribes becoming involved in water marketing, especially interstate.[71] Since Congress allows leasing of Indian lands for farming, mining, and oil and gas exploration it seems only logical that leasing of water rights should also be authorized.[72] By refusing to allow Indian water leasing, Congress is limiting its availability to those who would utilize it for natural resource development projects that would benefit both Indians and non-Indians. Refusing the necessary authorization for marketing water also limits or dictates its use contrary to western water use principles which encourage seeking the most beneficial use for water.

The issues regarding off-reservation leasing and interstate marketing involve different and separate concerns. Some non-Indian interests support allowing off-reservation leasing as long as the water cannot be transferred out of state, and most states accept off-reservation marketing contingent upon the benefits of the ultimate water use accruing to the state economy. However, states are much more jealous of allowing tribes to market water out-of-state where states are afforded no regulation authority.

The federal government and the Department of the Interior favor Indian water marketing as promoting more efficient use of western water, but no general statutory authority exists to allow all tribes to en-

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consent necessary for off-reservation use of tribal water. Pursuant to §415, the Navajo and Hopi tribes lease several thousand acre feet annually off-reservation to the Peabody Coal Company for a slurry pipeline. Telephone Interview with Sammy Maynes, Attorney for the Southern Ute Tribe (Mar. 19, 1997).

70. The Carter, Reagan and Bush administrations endorsed marketing of Indian water rights as a means to fund Indian water settlements. Peter W. Sly, *supra* note 53, at 44. With the days of easy money for federal water projects over and with the increasing complexity of environmental compliance making development of new water supplies too costly or impractical, some argue water marketing is the most feasible option for delivering Indian water entitlement. Steven J. Shupe, *supra* note 8, at 2.

71. Congress has authorized off-reservation marketing for all of the Colorado Basin Indian settlements approved since 1982. However, authorized off-reservation marketing remains subject to state regulation. Peter W. Sly, *supra* note 53, at 46. Most states were bitterly opposed to even a hint that tribes should have the power to market their water interstate in the 1980s when most of the compacts were approved by Congress. Since that time, some water-short western states have had a change of heart—California and Nevada currently favor authorizing tribes to market water interstate. Colorado and Arizona, however remain opposed—fearing California and Nevada will win the bidding war for lower basin water. Telephone Interview with Sammy Maynes, Attorney for the Southern Ute Tribe (March 19, 1997).

72. Testimony of David Getches *supra* note 62; *See also,* Lee Herold Storey, *Leasing Indian Water Off The Reservation: A Use Consistent With The Reservation's Purpose,* 76 CALIF. L. REV. 179, 206 (1988). Storey argues that leasing of Indian reserved water rights is a new pursuit consistent with the progress of civilization since the nation's market for buying and selling water rights has increased over the years.

gage in marketing unexercised reserved water rights.[73] The Department of the Interior's policy report states that water marketing should be a cooperative effort among federal, state, and tribal governments, but that "marketing initiatives have to be in accord with federal law."[74] The National Water Commission recommended that the government lease water from Indians to stabilize non-Indian water uses.[75] Yet Congress has refused to approve settlements of Indian water rights disputes which included even the possibility of interstate water transfers.[76] Although some settlements have included leasing of tribal water rights on and off reservation,[77] the issue of whether the scope of the *Winters* right includes the legal right to market a tribes' water off-reservation remains unclear.[78] Opponents to off-reservation leasing may acquiesce to specific instances of marketing established by settlement agreement, but they strongly object to admitting that the *Winters* right establishes precedent for authorizing the right.

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73. The Non-Intercourse Act could provide a legal barrier to Indian water marketing. The Act requires congressional approval of any "purchase, grant, lease, or other conveyance of lands, or of any title or claim thereto, from any Indian nation . . . ." 25 U.S.C. §177 (1955). The argument has been made that the Act prohibits the leasing of Indian water rights, and that a specific act of Congress granting approval for such leasing agreements is necessary. David Getches and others suggest that Congress is under obligation to act pursuant to the trust responsibility owed tribes, and that water markets are a means for tribes to realize material benefits from their rights now rather than forcing tribes to wait for the completion of federally funded water projects. *See,* Testimony of David H. Getches, *supra* note 62. A general statute enacted by Congress that waives the Nonintercourse Acts for Indian water marketing would allow individual tribes to enter off-reservation leasing agreements without express congressional approval. Congress could still delegate approval authority to the Secretary of the Interior as is done with leases of land to non-Indians.

74. To date, all settlement agreements authorizing off-reservation leasing strictly adhere to state regulation of interstate water transactions which shows that tribes are willing to work cooperatively with states recognizing interstate agreements. Secretary of the Interior, Bruce Babbitt, *supra* note 29.

75. Joseph R. Membrino, *supra* note 6, at n.14; *see, also* Storey, *supra* note 72, at 214, stating that states should realize that transferring Indian water rights in water short areas would serve both the Indians' and the other regional users' economic interest.

76. David H. Getches, *supra* note 62, at 4.

77. Several tribes are operating under congressionally authorized settlement agreements. Each agreement varies slightly from the next but all have a common thread—tribes are required to make major concessions in these settlement agreements. Telephone Interview with John Leepers, Navajo Department of Water Resources (February 13, 1997). For example, in the 1985 Compact to settle the Assiniboine and Sioux tribes' water rights in Montana, the Navajo tribe was forced to waive all Indian water rights claims against the U.S. government and agree to protect the irrigation rights of approximately 32,500 acres of non-Indian landowners by agreeing not to market their water entitlement from the Missouri River. The Western Area Power Administration estimated that if the tribes marketed 50,000 acre feet out of the basin, downstream power production would diminish by $395,009,000 to $4,000,000,000 annually. Statement of Congressman Pat Williams, *supra* note 3.

78. By asking courts to limit the scope of the *Winters* right to prohibit change of use for off-reservation leasing, states can avoid altogether the battle over interstate marketing. If the *Winters* right is limited in scope to include only on-reservation use, and in-state off-reservation use, the question of whether tribes may allocate their *Winters* entitlement to interstate marketing will no longer be an issue.

Tribes recognize the importance of water markets.[79] Water marketing gives value to Indian water rights,[80] as a means of raising capital for long-term growth and to augment money available from the federal budget. Water marketing is becoming increasingly important to tribes as western economies are experiencing growth while at the same time many western water basins are at or near full appropriation. Environmental and financial constraints are making development of new water supplies politically unpopular, and tribes are being asked to pay the price for increasingly stringent environmental regulations by foregoing water projects simply because their projects were last in priority for completion.[81] Therefore, facilitating water transfers is becoming increasingly appealing for meeting growing demands for water.[82]

Indians have taken a proactive position toward developing and protecting tribal water resources by forming partnerships of tribes having water claims in a common river basin.[83] These tribes believe that

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79. This is not to indicate that all Indians or all tribes are generally in favor of marketing their water. In fact, there are many tribal members who view water marketing as a violation of their religious and cultural values. RICKY SHEPHERD TORREY, MARK TILDEN, AND DWAYNE FOWLES, TRIBAL WATER MARKETING,10 n.26 (1995); Steven J. Shupe, *supra* note 8, at 8.

80. By the application of water obtained by settlement agreement, the Ak-Chin Tribe in central Arizona expanded the tribe's irrigated acreage by over 10,000 acres, replacing governmental and social services once provided to members with services funded from tribal income from the profitable farming enterprise and off-reservation pumping. Reid Peyton Chambers and John E. Echohawk, *Implementing The* Winters *Doctrine of Indian Reserved Water Rights: Producing Indian Water And Economic Development Without Injuring Non-Indian Water Users?* 27 GONZ. L. REV. 447, 456.

81. Since the 1970s, money for federal water projects has become increasingly difficult to obtain. The current movement opposing federal expenditures on such projects provides an example of the difficulties tribes encounter. U.S. Senator Russ Feingold, D-Wis., along with twenty-three environmental groups released the "Green Scissors '97 Report," February 3, 1997. The Report identifies federal programs that members consider waste billions in tax dollars as well as damage the environment. Included in the report is an amendment proposal terminating funding for the Animas–LaPlata federal water project in Colorado, *see* n.59. Although the Animas–LaPlata Project would benefit Indian and non-Indian water users, the project is the last unfinished step in meeting all the terms of the Colorado Compact Agreement which settled all the water claims to the Colorado River of the Southern Ute Tribe and the Ute Mountain Ute Tribe. *Government Press Releases, Media Advisory*, February 3, 1997, *available in* WESTLAW, ALLNEWS Database.

82. *Supra* note 29, at 7. Secretary of the Interior, Bruce Babbitt emphasized his belief that water marketing is an important tool in bringing California's long term need to bring its demand in line with available supply. There is also a growing contingency that believes that authorizing tribal water marketing could become a vehicle for solving constraints and impediments of the environmental regulations and difficulty in raising money for water development for tribes—water marketing rights could be used as a trade-off for the constraints placed on the utilization of tribal water by restrictive environmental compliance. Telephone Interview with Stanley Pollack, Navajo Nation Department of Justice (Mar. 4, 1997).

83. *Hearings on the Lower Colorado River Before The Subcommittee On Water And Power Of The Senate Energy And Natural Resource Committee*, 103d Cong., 2d Sess., 170-75 (1994) (testimony of George Arthur, President Colorado River Basin Tribes Partnership); *see*, Attachment A: *Position Paper of the Ten Tribes With Water Rights In The Colorado River Basin* (1994) (stating that the primary purpose of the partnership is to maximize on-reservation use of tribal water, although tribes are willing to explore off-reservation use

intrastate and interstate water marketing is consistent with the Commerce Clause,[84] and can be structured so as not to undermine compact allocations.[85] For example, the Colorado River Basin Tribes Partnership proposed that: (1) each tribe should quantify, with the cooperation of the States, an available supply of unused tribal water; (2) tribes and water-short states would determine among themselves how much water, and under what terms, they would lease from the tribes; and (3) leases would be subject to approval by the basin states, the tribal partnership and the Secretary of the Interior.[86]

Non-Indian opposition to Indian water marketing is primarily based upon the following arguments: (1) that the *Winters* right did not contemplate water leasing in any form, thus reserved rights are not intended to be marketable;[87] (2) tribes will sell to the highest bidder to the disadvantage of existing users;[88] (3) tribal marketing disrupts already settled interstate allocations of water;[89] (4) transfer of Indian water rights should be governed by the same principles of state water law controlling that particular region.[90]

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of tribal water).

84. *Id.* at 14. The Colorado River Basin Tribes Partnership stated that present discussions among the States are troubling to the tribes. "California's concept of an escrow account envisions that substantial quantities of presently unused water will be utilized by California with compensation paid to other Basin States—much of the water California wished to use is allocated to the tribes, yet there is no provision for compensating tribes." The Partnership proposes to work cooperatively with states to provide the water California needs while compensating tribes.

85. Sporhase v. Nebraska, 458 U.S. 941 (1982). Tribes are relying on Interstate Commerce Clause prohibitions on state control over allocation of water rights that cross state boundaries.

86. This proposal is representative of the position most tribes take regarding the issue of water leasing. Tribes show a willingness to work cooperatively with states to provide water to those water-short areas within a basin, but they wish to maintain authority to negotiate separate agreements with purchasers pursuant to principles of tribal sovereignty and federal Indian policy of promoting tribal independence.

87. This argument rests on the belief that the *Winters* right should be narrowly defined to provide water for tribal use on the reservation only, and only for the original purposes of the reservation none of which expressly mention water marketing. Joseph R. Membrino, *supra* note 6. The Governor of Arizona is currently advocating a prohibition against all tribal water marketing, even on the reservation. Telephone Interview with John Leepers, Navajo Department of Water Resources (Feb. 13, 1997).

88. An example of this is the Fort Peck Reservation in Montana. Several downstream states successfully sued to stop the ETSI pipeline which would have delivered 20,000 acre feet a year out of the Oahe Reservoir in South Dakota for slurrying coal to the southeast. Tribes have been forced to trade these out-of-basin water marketing opportunities in order to get Congressional approval of their negotiated settlement agreements. *Hearings on HR 5098 Before the Committee on Natural Resources Oversight and Investigations,* 103d Cong., 2d Sess. (1994) (testimony of Caleb Shields, Chairman Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation). These are instances where Getches, the Navajo Tribe, and others argue the federal government has breached its trust responsibility to tribes.

89. Many western states have implemented area-of-origin protections, restricting transfers to the basin of origin. States with negotiated agreements allowing tribal leasing maintain these protective provisions. Torrey, Tilden & Fowles, *supra* note 79, at 28.

90. Out-of-basin marketing becomes extremely political. The Fort Peck Reservation Tribes in Montana calculated the price of trading their out-of-basin marketing options as: 50,000 acre feet of the Tribe's water remaining in the Basin was worth at

THE TRUST RESPONSIBILITY

Tribes should argue that the government violates its trust responsibility by neglecting to assist tribes in capitalizing on opportunities for economic development through leasing their entitlement to water.[91] This trust relationship is a result of tribal agreements ceding land to the federal government in exchange for promises of protection and the creation of a permanent homeland for Indians.[92] The Supreme Court has held that such promises created a "duty of protection" on the part of the federal government toward Indians that extends to federal statutes, agreements, and executive orders.[93] The commitments may be implied and the responsibility imposes an independent obligation on the federal government to remain loyal to the Indians to advance their interests—including the encouragement of tribal independence.[94]

The Supreme Court has held that the federal government is the "fiduciary" of tribal resources.[95] A Senate Commission expressed the obligation as: ". . . to ensure the survival and welfare on Indian tribes and people . . . this includes an obligation to provide those services required to protect and enhance Indian lands, resources, and self-government . . ."[96] Generally, the trust responsibility extends to all reservation trust assets including water and agency duties for water project management.[97]

The federal government has not upheld its obligations to tribes in the past. For example, when the Newlands Project, which serves the Carson River watershed in Nevada, was originally planned, the United States persuaded the Indians to exchange their 160-acre allotments within the project area for 10-acre parcels which the United .States. promised would receive water from the Newlands Project when it was completed.[98] This promise was broken, the allotments proved not to be irrigable, and project water was not delivered to them.[99] Congress later promised to add land to the reservation and bring 1800 acres un-

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least $4 million per year in terms of federal hydropower revenues downstream. Another measure of the value of relinquished water marketing authority is to consider the value established by the ETSI proposal—$180 per acre foot per year, or $9 million per year for 50,000 acre feet. Statement of Caleb Shields, *supra* note 88.

91. The Supreme Court recognized this trust responsibility in *Cherokee Nation v. Georgia*, 30 U.S. 1 (1831); *Worcester v. Georgia*, 31 U.S. 515 (1832).

92. *Cherokee Nation*, 30 U.S. at 27.

93. *Id.*

94. *Id.*

95. American Policy Review Commission, *Final Report*, 130 (Washington, D.C.: Government Printing Office, 1977).

96. *Id.*

97. The trust responsibility is imposed on the administrative agency entrusted with the authority and responsibilities over Indian affairs. The Bureau of Indian Affairs is responsible for management of federal irrigation projects, therefore, the BIA owes a fiduciary duty to tribes to protect *Winters* rights.

98. Chambers and Echohawk, *supra* note 80, at 463.

99. *Id.* at 461.

der cultivation, but this too was never accomplished.[100] In the San Juan region, the Governor of New Mexico petitioned the Navajo Nation to waive all their *Winters* rights in exchange for construction of NIIP, a project that has never been built. Another example of delayed or broken promises is the Animas–LaPlata which was to provide for the settlement of the Colorado Ute Indian tribes' reserved water rights claims.[101] These tribes have been waiting since 1988 for the Animas–LaPlata Reclamation Project to be built to fulfill promises made by the government in that Compact,[102] but the federal government is the only remaining party to the agreement that has yet to fulfill its obligations under the Compact.[103] Without the construction of the project, the tribe's alternative would be to reopen litigation, jeopardizing the water rights of non-Indian irrigators and municipalities, including owners of water on the La Plata and Animas rivers and their tributaries.[104] Failure to complete the project would violate the government's trust responsibility to the tribes.

CONCLUSION

Tribes have the legal authority to assert their claim to an enormous share of water in the West. Most Indians believe that water marketing in water-short basins can benefit both Indians and non-Indians and tribes have expressed their willingness to work cooperatively with states to provide water to those willing to lease unused tribal water rights. Through water marketing, tribes hope to become self-supporting, independent of most federal government services. Water marketing may provide a last opportunity for tribes to maximize the value of a resource to assist Indians.

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100. *Id.*

101. The Animas–LaPlata Project will deliver water committed by the federal government under the 1988 Colorado Ute Indian Water Rights Final Settlement Act. The agreement settled the Southern Ute and the Ute Mountain Ute Indian Tribes' *Winters* water rights claims. The project has been delayed since its authorization in 1968 for numerous reasons and is currently under attack by the Feingold "Green Scissors" movement, *see* n.59.

102. The Southern Ute Tribe expects the United States to keep its work to the tribe. Telephone Interview with Mr. Leonard Burch, retired Tribal Chairman, Southern Ute Tribe (Feb. 5, 1997).

103. The construction of Animas–LaPlata is the only uncompleted component of the settlement. The State of Colorado has already built the Towaoc pipeline which delivers drinking water to the Ute Mountain Ute Reservation from the Dolores Project. The State has also met its obligation to escrow funds—now sixty million—for the construction of ALP. *Id.*

104. Statement of Ron Pettigrew, President, and Steve Harris, Secretary, Board of Directors Animas–LaPlata Water Conservancy District, *supra* note 55.

COLORADO WATER COURT REPORTS

WATER COURT DIVISION 1

APPLICATION FOR A CHANGE IN WATER RIGHTS INCLUDING APPROPRIATIVE RIGHTS OF SUBSTITUTION AND EXCHANGE IN PARK, CLEAR CREEK, LARIMER, WELD, JEFFERSON, GILPIN, AND ADAMS COUNTIES. Case No. 96CW1117 (Water Division 1, Dec. 31, 1996) Co-Applicants: Coors Brewing Company (Atty. Jack F. Ross); City of Thornton (Atty. Michael D. White and David C. Taussig); City of Golden (Atty. Glen E. Porzak).

1. Historical Setting

The City of Thornton and Coors Brewing Company, entered into an agreement dated May 23, 1988. The primary purpose of the agreement between the two parties was for the City of Thornton to deliver 2,500 af of water to Coors beginning in the year 2000 and perpetually thereafter. The parties modified the original contract on December 23, 1996. The modification provides for the elimination of certain risks to Coors consisting mostly of the assumption by the City of Thornton to replace all return flows otherwise lost to the Clear Creek and South Platte system. Coors, as consideration for the modification, agreed to reduce the 2,500 af delivery to 2,100 af and provide the City of Thornton with 600 af of fully consumable water.

On the same date as the original Coors–Thornton agreement, Coors Brewing Company entered into an agreement with the City of Golden. The primary purpose of this agreement was to grant the City of Golden an option for the right to receive up to 900 af of the Thornton delivery. The City of Golden, upon exercising the option, would have the right to first use of the delivery with the right to reuse, successive use, and disposition of such water retained by Coors or Thornton depending upon payment of return flow obligations.

2. First Claim: Change of Thornton Water Rights

Originally, the proposed water to be delivered by the City of Thornton to Coors and to Golden was decreed for irrigation, but the use was changed in three previous court proceedings. Thus, City of Thornton, City of Golden, and Coors Brewing Company ("Co-Applicants") seek approval to permit the City of Thornton to exercise the changed water rights for different uses as originally decreed and at different locations from the original locations. The specified water rights are as follows:

(a) Water Rights Decreed to Farmers High Line Canal ("FHLC"): Approximately 15.5% of the water rights decreed to FHLC as modified in Case No. 87CW334.

(b) Water Rights Decreed to the Church Ditch: Approximately 7% of the water rights decreed to Church ditch as modified in Case No. 89CW132.

(c) Water Rights Decreed to Farmers Reservoir and Irrigation Company ("FRICO"): Approximately 13.73% of the water decreed to the Croke Canal and Standley Lake of the Farmers Reservoir and Irrigation Company as modified in Case No. 89CW132.

3. Second Claim: Conditional Appropriative Right for FRICO Bookover Exchange

The City of Thornton also seeks judicial approval of the book-over exchanges in Standley Lake under terms and conditions previously approved by FRICO April 2, 1987. The City of Thornton seeks to accomplish this by having the rate of flow which normally would be diverted into the Croke canal and Standley Lake reduced to be made available to Coors or the City of Golden. At times when the rate of flow exceeds the City of Thornton's interest, the City shall exchange other water in its account in Standley Lake to mitigate the reduction.

4. Third Claim: Appropriative Right of Exchange on Clear Creek

The appropriative rights of exchange for which judicial approval is sought will be used at such times as Coors chooses not to take delivery from the City of Thornton. The third claim is predicated upon the proposed changes to the water rights in the first claim for relief.

5. Fourth Claim: Use of Coors' Fully Consumable Water by Thornton

The Applicants seek to facilitate the modified agreement between Coors and the City of Thornton. The Applicants seek judicial confirmation of the right to use the natural streams and watercourses of the State of Colorado to facilitate the delivery of the 600 af of fully consumable water from Coors to the City of Thornton.

6. The Fifth Claim: Appropriative Rights of Exhange and Changes (Golden)

The City of Golden seeks to change the uses and places of use decreed by the 900 af option to include municipal uses within the City of Golden.

7. Opposition

Statements of Opposition were filed by the following: Harold D. Simpson (State Engineer) and Richard L. Stenzel (Division 1 Engineer); Farmers Highline Canal and Reservoir Company; Lower Clear Creek Ditch Company; Centennial Water and Sanitation District; City of Aurora; City of Black Hawk; The Agricultural Ditch and Reservoir

Company and The Golden Canal and Reservoir Company; Public Service Company of Colorado; City of Northglenn and Church Ditch Company; Colorado Water Conservation Board; City of Englewood; The Water Supply and Storage Company and The Jackson Ditch Company; The Consolidated Mutual Water Company; City of Arvada; The Colorado Agricultural Ditch Company; and, The Central Colorado Water Conservancy District and the Ground Water Management Subdistrict of the Central Colorado Water Conservancy District.

Generally, the opposition claims that the Co-Applicants' proposed action will either injure their decreed direct flow and/or will result in the depletion of return flows to Clear Creek, Ralston Creek, and/or the South Platte System. Several of the opposing parties claim that the Co-Applicants' action will either modify existing contractual obligations with respect to diversion facilities, or will expand such obligations, thereby increasing the costs of such facilities. The last general complaint is that the Co-Applicants' proposed action would harm historical flows or water rights held to preserve the natural environment.

The case is set for ruling before the referee on March 3, 1998.

John McCall

WATER COURT DIVISION 2

APPLICATION FOR APPROVAL OF WATER STORAGE RIGHTS, SURFACE WATER RIGHT, PLAN OF AUGMENTATION, AND APPROPRIATIVE RIGHTS OF EXCHANGE OF WATER RIGHTS. Case No. 96CW233 (Water Division 2, December 31, 1996) Applicant: City of Cripple Creek (Atty. James G. Felt).

1. Application

The City of Cripple Creek ("Applicant") seeks water storage rights, surface water rights, rights of exchange, and an approval of a plan of augmentation with respect to a new reservoir and pipeline proposed on Oil Creek, tributary to Fourmile Creek, tributary to the Arkansas River. Obtaining these new rights will increase Applicant's available water supplies for all beneficial uses.

Applicant requests a conditional water storage right in the amount of 252 af, an amount that would equal the capacity of a reservoir they intend to construct. This reservoir will be known as "Oil Creek Reservoir," and will be located in the NE 1/4 SE 1/4, Section 28, Township 14 South, Range 69 West of the 6th P.M. The reservoir will have a maximum surface area of 15.5 acres. The dam will have a maximum height of 60 feet, and a crest length of 380 feet. The surface flows of Oil Creek will provide the course to fill the reservoir. Applicant appropriated the flow on June 26, 1996, by a field visit to the site.

Applicant will use the storage right for Applicant's consumptive use stream credits in pending Case No. 96CW190, Division 2, filed October 30, 1996, to be exchanged to Oil Creek Reservoir. In Case No. 96CW190 Applicant claims 99.1 average annual acre feet of consumptive use stream credit from West Fourmile Creek. Applicant will also use the storage right for water from Oil Creek when in priority, and/or water when augmented under an appropriated right of exchange. Applicant calculates evaporation as a reduction from the reservoir on the basis of 1.55 annual acre feet of net evaporation for each surface acre of the reservoir per year.

Applicant further seeks a conditional surface water right in the amount of 4.6 cfs for the Oil Creek Pipeline. The headgate is on the left (south) back of Oil Creek in the NE 1/4 NE 1/4 Section 28, Township 14 South, Range 69 West of the 6th P.M. , 2050 feet from the South line of Section 28, and 100 feet from the East line of Section 28. Applicant claims all beneficial uses including domestic, municipal, irrigation, commercial, industrial, recreational, fish and wildlife, exchange, and augmentation, with an appropriation date of June 26, 1996.

The augmentation plan for the Oil Creek Reservoir and Pipeline will augment out of priority depletions to Fourmile Creek for water di-

verted from Oil Creek to Oil Creek Reservoir and Pipeline. For purposes of augmentation, Applicant will use 99.1 average acre feet of consumptive use credits attributable to historic consumptive use under the Howard, George, and Spring Ditches to be decreed in pending Case No. 96CW190. The out of priority diversions will be replaced by one of two methods: (1) a credit of the consumptive use stream credits directly to West Fourmile Creek; or (2) a release to West Fourmile Creek Reservoir of the consumptive use stream credits placed into storage at the West Fourmile Creek Reservoir under Case No. 96CW190, or exchanged into storage at West Fourmile Creek Reservoir under this application.

Applicant seeks an appropriative right of exchange to Oil Creek Reservoir and/or Pipeline for the consumptive use stream credits to be decreed to West Fourmile Creek and West Fourmile exchange is from the confluence of West Fourmile Creek and Fourmile Creek in the NE1/4 NE1/4 of Section 12, Township 15 South, Range 71 West of the 6th P.M., up approximately 20 miles upstream on Fourmile Creek and Oil Creek to the site of the Oil Creek Reservoir and Pipeline on Oil creek. The appropriation date of the exchange is June 26, 1996.

Consumptive use credits exchanged into Oil Creek Reservoir and Pipeline consist of fully consumable water subject to use and reuse by Applicant to extinction. Applicant will use the exchanged consumptive use credits from Oil Creek Reservoir and Pipeline in Cripple Creek's municipal water supply. An estimated 85% of the consumptive use credits will be discharged into Cripple Creek, tributary to Fourmile Creek, tributary to the Arkansas River, as treated effluent return flows.

Applicant seeks an appropriative right of exchange for 85% of the consumptive use stream credits exchanged into Oil Creek Reservoir and Pipeline, used throughout the municipal system, less transportation losses from point of release into Cripple Creek to the confluence with Fourmile Creek. The point of exchange is from the confluence of Cripple Creek with Fourmile Creek in the NW1/4 SE1/4 of Section 9, Township 16 South, Range 70 West of the 6th P.M. up approximately 18 miles on Fourmile Creek in the SW1/4 SW1/4 Section 3, Township 15 South, Range 71 West of the 6th P.M., with a priority date of June 26, 1996. The maximum flow rate is 3.9 cfs.

2. Opposition

Cripple Creek and Victor Gold Mining Company, the Arkansas Valley Ditch Association, on behalf of its various ditch and waterworks members, the State Engineer, the City of Colorado Springs, and Cannon Heights Irrigation and Reservoir Company have filed statements of opposition.

In addition, the Bureau of Land Management ("BLM") filed opposition on three grounds. It objects to the placement of a portion of the reservoir and pipeline on public lands. The BLM has not granted the necessary right of way permits for such placement. The BLM further objects to the proposed domestic use of water from the contem-

plated reservoir. The presence of livestock on the public lands surrounding the reservoir may contaminate the reservoir. The BLM will not guarantee that it will issue a range improvement permit to allow measure to prevent such contamination. Finally, the BLM objects to the appropriation date of June 26, 1996. It maintains that under the *City of Thornton v. Bijou Irrigation Company*, 926 P.2d 1, 34-36 (Colo. 1996), the field trip to the site did not create sufficient inquiry notice to satisfy the "first step" of a conditional appropriation. The BLM maintains that only the filing of the application with the Water Court satisfied the "first step" requirement. The filing date should thus be the date of appropriation.

The Colorado Water Conservation Board, which has appropriated a water right on Fourmile Creek (Case No. 95CW233) to preserve the natural environment, has objected. John T. Halton and Howard Stone, each of whom hold water rights downstream of the proposed Oil Creek Reservoir and upstream of the confluence with West Fourmile Creek, have also filed statements of opposition.

The Southeastern Water Conservancy District and the Applicant filed a stipulation, that Applicant will not store or divert water from Oil Creek at any time a valid senior to 1996 exists to satisfy any presently decreed water right on Fourmile Creek between the confluence with Oil Creek and the confluence with West Fourmile Creek. This stipulation was accepted by the Water Court.

The State Engineer's Office filed a consultation report dated April 30, 1997.

Darrell Brown

BOOK REVIEWS

ENVIRONMENTAL LAW HANDBOOK, 14th ed., Thomas F. P. Sullivan, ed., Government Institutes, Inc., Rockville, MD (1997); 587pp; $79.00; ISBN 0-86587-560-X; hardcover.

REVIEWED BY GEORGE (ROCK) PRING*

Law books, like rivers, usually make us choose between depth or breadth. In a field where most texts choose to cover a few major laws in depth,[1] *Environmental Law Handbook* stands out. It is easily the most comprehensive single-volume on U.S. environmental laws; its 552 pages provide individual chapters on no less than fourteen of the major (and not so major) federal statutes. But, in such a complex legal area, is being called the best "single volume" damnation by faint praise? To put that question in context, *Environmental Law Handbook*'s own publishing house puts out fifteen separate books on just one law—the Clean Water Act (given only fifty-three pages in this book),[2] and even the in-depth books are being shoved off center stage by the multi-volume looseleaf environmental law services,[3] the many Westlaw, Lexis, and CD-ROM software services, and the burgeoning "enviro" sources on the Internet.

Happily, *Environmental Law Handbook* combines its comprehensiveness with a level of detail often lacking in other, more scholarly works. For the newcomer, the student, the environmental engineer, other non-

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1. Some of the better single-volume efforts (excluding casebooks) include WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW (2d ed. 1994); CELIA CAMPBELL-MOHN, ET AL., ENVIRONMENTAL LAW: FROM RESOURCES TO RECOVERY (1993); ROGER W. FINDLEY & DANIEL A. FARBER, ENVIRONMENTAL LAW IN A NUTSHELL (1996); OLGA L. MOYA & ANDREW L. FONO, FEDERAL ENVIRONMENTAL LAW: THE USER'S GUIDE (1997); STEVEN FERREY, ENVIRONMENTAL LAW: EXAMPLES AND EXPLANATIONS (1997). While all good in their own ways, none of these attempts to cover as many statutes as the reviewed text.

2. *E.g.*, CLEAN WATER HANDBOOK (Lynn M. Gallagher & Leonard A. Miller eds., 2d ed. 1996); NPDES PERMIT HANDBOOK (Leonard A. Miller, *et al.*, eds., 1992); NPDES COMPLIANCE INSPECTION MANUAL (3d ed. 1995); NPDES BEST MANAGEMENT PRACTICES MANUAL (1995); GROUNDWATER HANDBOOK (2d ed. 1992); THEDDA BRADDOCK & L. REED HUPPMAN, WETLANDS: AN INTRODUCTION TO ECOLOGY, THE LAW & PERMITTING (1995); WATER QUALITY STANDARDS HANDBOOK (2d ed. 1995).

3. *E.g.*, BUREAU OF NAT'L AFFAIRS, ENVIRONMENT REPORTER; ENVIRONMENTAL LAW INSTITUTE, ENVIRONMENTAL LAW REPORTER.

law professionals, even the experienced attorney venturing into a new environmental law area—this is the book to reach for first. Personally, I have found it successful as a textbook for teaching environmental law to graduate environmental engineers, as a reference for baffled law students, and as a welcome overview for co-counsel and clients.

Now in its twenty-fourth year (new editions come out about every two years), this edition is current through the end of 1996. It has as its twin goals: (1) "to give its users reliable, accurate and practical compliance information," and, (2) to do so "in a clear, concise manner, with a minimum of legal jargon."[4] It succeeds in the latter, if not the former. Its sixteen chapters are written by fifteen different attorneys who are surprisingly successful (for us lawyers) at being clear and concise and, given the page limitations (each law is discussed within thirteen to fifty nine pages), at being reliable and accurate. However, since no hardbound single volume should ever be relied on as a sole source for complete or up-to-date compliance guidance, a caveat *is* in order

The attorney-authors are drawn chiefly from the Washington D.C. environmental defense bar, giving rise to one of the book's major weaknesses. The "regulated industry" perspective is pervasive here, which in itself would not be a fault, except that some of the chapters are so industry-loyal they fail to inform the reader of the legal positions and ethical perceptions of the government regulators or the environmentalists with whom those representing industry will have to deal. The CERCLA chapter is perhaps the premier example of this one-sidedness, deluging the reader with the party line: "roundly criticized by industry," "draconian system," "hinders economic growth," "frustration over the slow pace of cleanup," "waste of taxpayer monies," etc. Since the author fails to present the other side(s), the reader is left to guess why the law has survived for seventeen years and, thus far, has only been strengthened by Congress and the courts. Even soap boxes have more than one side.

This one-dimensionalism also makes the first two chapters ("Fundamentals of Environmental Law" and "Enforcement and Liability") less than successful. They focus exclusively on the "what" and the "how," the technical nuts and bolts of environmental law—how law is made, where it can be found, judicial review, search warrants, civil and criminal penalties, etc. While they do that fairly well, they totally ignore the "why," the reasons for (and romance of) environmental law—the history, the underlying ethics, the economics, philosophy, and policies, without which no field of law can be adequately understood, least of all this enormously political one.

The remaining chapters cover the Clean Air Act ("CAA"), Clean Water Act ("CWA"), Oil Pollution Act ("OPA"), Safe Drinking Water Act ("SDWA"), Toxic Substances Control Act ("TSCA"), Pesticides ("FIFRA"), Resource Conservation and Recovery Act ("RCRA"), Underground Storage Tanks ("UST"), Federal Facility Compliance Act ("FFCA"), National Environmental Policy Act ("NEPA"), Comprehensive

4. ENVIRONMENTAL LAW HANDBOOK at xxix.

Environmental Response, Compensation and Liability Act ("CERCLA" or "Superfund"), Emergency Planning and Community Right-to-Know Act ("EPCRA"), Pollution Prevention Act ("PPA"), and Occupational Safety and Health Act ("OSHA"). A look at several of the best chapters, and one of the worst, suggest the range in quality.

For the water bar, a number of the chapters will be of major interest, including those on the CWA, SDWA, NEPA, and CERCLA. Not surprisingly for a book focused on federal law, there is no chapter on the law of water rights *per se*, either as practiced in the western or eastern United States. However, it is surprising that there are no chapters on the Endangered Species Act or federal land-management agency laws—real deficits in a book that purports to be a comprehensive treatment of environmental law (west of Washington D.C.).

The Clean Water Act chapter is one of the best in the book. It lays a good foundation with short sections on CWA history, goals, program elements, and jurisdictional definitions. It then describes the National Pollutant Discharge Elimination System ("NPDES") permit program in some detail (almost half the chapter), including one of the more lucid explanations of performance standards in the book (the Clean Air Act chapter should be so clear!). Following that, it treats the nuances of toxic controls, pollutant trading, variances, storm water permits, thermal pollution, ocean discharges, non-point sources, 404 permits, and spills. The last ten pages of the chapter provide a surprisingly thorough look at enforcement, with some of the topics—the crucial role of citizen suits being an example—covered better than in the book's thirty-one page generic chapter dedicated to enforcement.

The CWA chapter highlights a major failing of the book. One would think the saving grace of a "nutshell" summary like this would be footnotes that would guide the reader to the many in-depth treatises, law journals, and government guidance documents available. Not so. With the exception of the CWA, NEPA, and enforcement chapters (each of which do this well), the other chapters largely fail to direct the reader to any more detailed substantive sources, *and even omit the publisher's own in-depth works*! The CERCLA, OSHA, FIFRA, FFCA, and OPA chapters include some cases and other references, but the footnotes found in the CAA, RCRA, EPCRA, and most other chapters consist chiefly of lackluster string-cites to statute or regulation sections.

The CWA chapter is not without flaws. Groundwater and the unresolved controversies over CWA's coverage of it are dismissed in a few sentences despite the fact that groundwater is covered by some state NPDES permit programs[5] and in some cases by SDWA, RCRA, and CERCLA provisions. Cross-reference would seem to be crucial. Publicly owned treatment works ("POTWs"), combined sewers, and the 401 process are surprisingly missing. Also evident to a water lawyer is the general failure of this and other water *quality* chapters to address how these laws impact on water *quantity* issues. This eastern myopia is one of the major disap-

5. *Id.* at 114.

pointments of the book for those practicing west of the Mississippi.

Bucking that D.C. bias, the NEPA chapter is authored by prominent Denver environmental lawyer James (Skip) Spensley, who draws on his personal involvement in NEPA's enactment and development while he worked for the Administration and on the Hill in the 1960s-70s. The chapter begins with a solid overview of the policies and historical development of the Act, then quickly segues the reader to the controlling regulations, the primary focus of the "modern" NEPA lawyer (as opposed to case-law-only treatment so many texts still give it).

A most innovative and attractive aspect of the chapter is that it presents the issues from the perspective of "Strategic Approaches to NEPA Compliance," a far more integrated and useful way to explain compliance than the disconnected treatment of issues found in some other chapters. The author walks the reader through the steps in determining (or avoiding) NEPA application, EIS preparation, public involvement, international applications, environmental justice, and agency and judicial review.

Shortfalls are also apparent in the NEPA chapter. One is clearly the editor's: understanding NEPA, our first environmental law, the "Magna Carta of the environment," is a must for anyone hoping to understand the later command–control laws, and the editor should have positioned NEPA as a leadoff chapter (not twelfth after the Oil Pollution Act and Underground Storage Tanks). Another flaw is length. Although an important and complex act, NEPA is given only twenty-seven pages, half the length of the CWA, CERCLA, and TSCA chapters. Finally, there is a substantive flaw as well. The chapter really does not focus on the core of modern NEPA practice. Ponderous environmental impact statements ("EISs") are still being produced, but today's federal agencies are producing nearly one hundred environmental assessments ("EAs") for every one EIS.[6] EAs document why the environment will not be "significantly affected" and therefore why an EIS is unnecessary. Their emergence as the dominant NEPA compliance tool of the 1990s is not mere law avoidance; unlike EISs, EAs reward agencies for investing in mitigation to reduce their environmental impacts below a significant level, a potential "win-win" for both paperwork and the environment. While the chapter has brief sections on EAs and mitigation, the two are dealt with separately instead of as the coordinated central focus of NEPA practice they have become.

Most of the other chapters in *Environmental Law Handbook* summarize their laws in reasonably complete and professional fashion. One "back-to-the-drawing-board" exception is the CERCLA/Superfund chapter. Apart from its very negative approach (surely authors can be found who do not hate their subject!), the chapter omits many of the current cutting edge issues a professional reader would want to understand. After starting with very weak history and overview sections, the chapter then

6. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL QUALITY: 23RD ANNUAL REPORT 153, 162 (1993).

presents a somewhat disorganized discussion of CERCLA topics, as if going through an arbitrary checklist rather than an integrated look at compliance strategies, such as can be found in the NEPA chapter. Its discussions of the remedial planning process, liability, and CERCLA causes of action, defenses, and settlements are adequate, though hard to follow. Despite the fact that it is the second longest chapter in the book, it either omits or gives only passing mention of a surprising number of modern topics, including groundwater (the major environmental issue), non-National Priority List ("non-NPL") sites (the majority), Interim Remedial Actions ("IRAs"—emerging as a major cleanup strategy), environmental audits (an entire practice field in themselves), state law Applicable or Relevant and Appropriate Requirements (state "ARARs"—with their potential for "cadillac cleanups"), state mini-CERCLAs, lender liability avoidance, and brownfields (EPA's newest infatuation).

Overall, *Environmental Law Handbook's* strengths definitely outweigh its weaknesses. Its strengths make it the preeminent one-volume guide to the intricacies of the environmental laws, the best overall reference of its kind for a basic understanding of how the laws work. As for its weaknesses—leaving out the "why" of environmental law, inadequate references, lack of some key laws, D.C./defense bar biases, and failure to cover some cutting-edge issues—these could easily be cured in the fifteenth edition.

BOOK NOTES

THOMAS J. BOIS II AND BERNARD J. LUTHER, GROUNDWATER AND SOIL CONTAMINATION: TECHNICAL PREPARATION AND LITIGATION MANAGEMENT, John Wiley and Sons, Inc., New York, Chichester, Brisbane, Toronto, Singapore (1996); 786pp; $135.00; ISBN 0-471-13346-9, hardcover.

Contamination lawsuits involve complex scientific and legal issues crossing the boundaries of various disciplines. Familiarity with these issues will allow consultants and attorneys to work together toward the resolution of contamination cases. *Groundwater And Soil Contamination: Technical Preparation And Litigation Management* is designed to help consultants and lawyers understand technical concepts and environmental laws in order to thoroughly represent their mutual clients. The authors have combined their expertise to create a useful reference that places key information and litigation management considerations at the reader's fingertips.

The treatise is organized in an easy to use fashion which makes it a quick reference guide. The treatise is divided into two parts: a technical overview presented in nine chapters, and ten chapters covering litigation management. The treatise also contains an extensive appendix with supporting documentation, such as sample forms, that would be helpful in initiating and developing contamination cases.

Chapter one, in the technical overview section, contains a description of sixteen key pollutants typically found in contamination problems. Information on the sources, the characteristics, the hazards, the clean-up techniques, and the EPA tests for specifying the contaminant are discussed in layperson's terms for each listed contaminant. Chapter two takes on the common problem of buried tanks and their contribution to site contamination.

Chapter three is broken into twenty-one subparts all dealing with identifying contamination problems. It covers how to conduct Phase I through Phase III environmental assessments and lists state databases to aid in the completion of environmental assessments. Sampling requirements and techniques are also discussed. Chapter four, selecting an environmental consultant, is divided into six sections. Key factors such as credibility, reliability, and site closure records are valuable considerations in selecting a consultant. This section also provides a summary of the types of consultants that may be involved in contamination cases.

Chapter five is devoted to factors affecting remediation. This includes five levels of regulatory agency enforcement in contamination

cases. Soils types are defined, and methods of remediation of contaminants in specific soil types are discussed. Aquifers and related groundwater hydrology are covered thoroughly in chapter six. Groundwater testing models used to predict flow rates, future distribution, and current age of contaminants are also covered. Models are an important part of litigation because they provide three dimensional depictions of subsurface site conditions that help consultants, attorneys, and clients visualize the scope of the problem. In addition, models help explain details of the contamination problem to juries.

Treatment technologies vary, and in chapter seven the authors define various methods and describe their probable use in clean up. Site closures are covered with a lengthy discussion on contaminant plumes. Chapter eight is devoted to recognizing hydrocarbon fuels and to estimating their age of release. Recognizing hydrocarbons is important in estimating the mixing ratio which allows for allocation of responsibility. The date of hydrocarbon release is important for insurance purposes. This chapter provides information on the basic chemistry of hydrocarbons, the crude oil refining practice, and types of refined products.

The last chapter in Part I provides case studies of what can go wrong during clean up. Seven case studies are presented, each providing a lesson to be learned regarding the different types of clean up actions.

Part II, Litigation Management, begins by detailing pre-litigation considerations in chapter ten. Nineteen sections cover initial aspects, such as selecting cases, coordinating professionals, retaining clients and the role of legal counsel, and estimating fee and agreements. The role of experts is thoroughly explained. Other pre-litigation concerns include investigation of potentially responsible parties and verification of statutes of limitations.

Chapter eleven discusses defense tactics including the statute of limitations, causation, contribution, indemnity, and philosophical considerations. The statute of limitations is discussed for negligence, strict liability, products liability, fraud, nuisance and trespass, breach of contract or lease, and indemnity. State statutes of limitations are provided in the appendix.

Chapter twelve starts with the history of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"). CERCLA is discussed in terms of five key areas which impact litigation: CERCLA elements; potentially responsible parties; defenses; recovery rights; and jurisdictional issues. The prima facie elements of CERCLA claims are provided, and the components of liability, standing, and the National Contingency Plan are discussed. A large portion of the chapter is devoted to potentially responsible parties in individual or corporate capacity. Lender, trustee, beneficiary, conservator, and executor liability are also discussed. Innocent landowner, exemption releases, statute of limitations, and ambient defense are each defined and the authors discuss how the defenses may be established. Recovery rights

under CERCLA are discussed including attorney's fees, the exclusion of jury trials, contribution and indemnity rights, and settling potentially responsible party's actions for contribution and cost recovery. Finally, jurisdictional issues of derivative claims, pendant jurisdiction, and exclusive jurisdiction are covered.

The elements of the Resource Conservation and Recovery Act ("RCRA") are laid out in chapter thirteen, beginning with RCRA history. In addition to the elements of RCRA, the elements of claims, relief available, and the nature of liability are discussed. The procedural aspects of standing and notice of suit are also presented. The chapter closes with sections on parties' liabilities and defenses, recoverable costs, and jurisdictional elements.

Chapter fourteen provides an alphabetical list of state environmental statutes. Statutes involving water pollution, hazardous substance management, waste, waste control, underground tank storage, well head protection, solid waste, water quality, groundwater pollution, property transfer regulations, enforcement, penalties, and allowable private citizen suits are discussed.

The common law causes of action for contamination claims are covered in chapter fifteen. These include negligence, negligence per se, trespass, nuisance, strict liability, products liability, fraud, deceit, misrepresentation, contract actions, indemnity, declaratory relief and defenses.

Chapter sixteen is devoted to insurance coverage. The authors stress the importance of insurance, especially for individuals and small to medium businesses. Topics discussed include policies providing specific environmental coverage, exclusions of sudden and accidental pollution, absolute pollution, and response costs.

Chapter seventeen discusses six aspects of discovery including: general limitations; depositions; interrogatories; demand for inspection of documents, land, and other things; and discovery devises. Environmental discovery in technical areas is covered stressing the need for an attorney to be knowledgeable of the technology involved and the supporting documents which may be discoverable. A typical list of documents is provided.

The final chapters discuss damages and settlement. In addition to the types of damages that may be sought, and basis for recovery, the author mentions settlement and other trial alternatives. Three areas in particular are highlighted: plaintiff's settlement strategies; defendant's settlement strategies; and other settlement methods such as alternative dispute resolution, mediation, and arbitration.

The appendix is quite extensive providing useful information such as listings of state and territorial environmental offices, EPA offices, sample letters, and forms. Coverage runs from the initial attorney/client interviews through settlement agreements and mandatory settlement conferences.

Groundwater And Soil Contamination: Technical Preparation And Litigation Management is a practical guide that will provide the reader with

the step by step process for handling groundwater and soil contamination studies and litigation. Mr. Bois and Mr. Luther have detailed information in such a manner that the book provides a valuable reference source for novices, as well as experts in the field.

Jacqueline G. Brill

MARK K. BRIGGS, RIPARIAN ECOSYSTEM RECOVERY IN ARID LANDS: STRATEGIES & REFERENCES, University of Arizona Press, Phoenix, Arizona (1996); 220pp; $45.00; ISBN 0-8165-1644-8, hardcover.

This guidebook deals with the technical aspects of riparian ecosystem recovery. However, as the author states, it is written so that those who do not have a background in natural resources can utilize the information. A wide variety of people, including developers, public officials, landowners, educators and students, will find this book to be a good resource for understanding and overcoming the decline of the riparian ecosystem in arid lands.

Chapter one gives an overview and explains how riparian ecosystems have changed over the years. The author explains some strategies for recovering different areas, and emphasizes the importance of evaluating site conditions and matching appropriate strategies to the specific needs of the site.

The remainder of the book focuses on the details of site evaluation. It discusses some issues to consider before making decisions to prevent damage to these delicate areas, or to return those which are damaged to a viable state. The author makes it very clear that what is good for one area will not necessarily provide the appropriate solution for all areas—each situation is unique. To illustrate his point, Briggs presents case studies, explains issues, and describes recovery plans in specific situations. This approach shows the reader how to apply different strategies to different situations.

Briggs also discusses how to evaluate damaged riparian areas from the watershed perspective. He gives the reader insight into taking advantage of aerial photographs and documented information, and provides information on where to obtain these materials. A chapter is devoted to evaluating the effects of land use activities within the immediate riparian environment and how to determine if these land uses, such as livestock grazing, and recreation, are causing the decline of the riparian ecosystem.

The factors influencing natural recovery in riparian ecosystems are discussed in great detail and some successful plans are explained. Briggs next discusses the importance of water availability for successful riparian recovery plans. This chapter explains groundwater decline, and emphasizes the importance of comparing past and present groundwater conditions in order to develop realistic recovery objectives and strategies.

Drainage of riparian ecosystems is discussed in terms of channel dynamics, strategies for evaluating channel stability and how to develop recovery projects along unstable alluvial stream channels. The

last factor effecting recovery is soil salinity and its effects on plant growth. Briggs also provides information on how to obtain soil surveys and what information can be obtained from these surveys. This chapter includes a table of soil salinity tolerances of selected plant species.

Once all of these factors are delineated and the reader has a better understanding of them, Briggs devotes a chapter to developing a site specific recovery plan. He stresses the importance of developing project objectives, investigating the local, state, and federal permit requirements, community involvement, and post project evaluation and monitoring of the recovery effort.

This guidebook is easy to understand and provides information that could be readily applied to any reader's specific area of interest. The author provides guidance throughout the book on how and where to obtain critical diagnostic information. In addition, he includes informative charts, graphs, diagrams and a useful glossary. Finally, an extensive bibliography (part of which is arranged to present background literature by state, and by agency) makes it easier to access additional information on specific aspects of riparian ecosystem recovery.

Tracy Rogers

GEORGE COLE, WATER BOUNDARIES, John Wiley and Sons, Inc., New York (1997); $55.00; 193pp; ISBN 0-471-17929-9, hardcover.

Water Boundaries presents a technical explanation of the accepted theories and techniques for locating legally defensible water boundaries. It includes mathematical equations and applications, as well as diagrams, charts and maps. In Cole's words, this treatise is an attempt "to provide a comprehensive overview of both the legal and technical aspects of the unique and specialized area of water boundaries." It is intended to be helpful to surveyors, attorneys involved with water boundary issues, public land managers, title and real estate professionals and others dealing with land planning, land development, offshore mineral extraction.

The text focuses primarily on coastal land boundaries, although there is some reference to river and lake boundaries. Cole explains that the surfaces of most water bodies are constantly changing due to tides and/or meteorological conditions. Also, the shoreline in many areas is subject to erosion and accretion caused by waves and currents. Therefore, water boundaries must be considered as four dimensional, including both height and time—dimensions not considered when determining land boundaries.

The information is divided into eleven chapters. Each chapter discusses a different type of geographic water body or type of boundary ownership. The first two chapters distinguish tidal sovereign from non-tidal sovereign water boundaries. Tidal sovereign boundaries are held under the generally accepted practice that the individual states hold title on behalf of the public to most of the submerged lands under navigable waters within their respective boundaries by virtue of the

public trust doctrine. The same doctrine holds true for non-tidal sovereign water boundaries within the individual states. Both chapters present techniques for locating these water boundaries, as well as case studies that further illustrate the techniques.

Later chapters explain which waters are sovereign, and discuss state, federal and national water boundaries. Cole's description of the boundaries between water bodies includes an in-depth discussion of bays. The final chapter provides a discussion of non-sovereign water boundaries. With the exception of the final chapter, the treatise primarily focuses on governmental ownership of water boundaries.

The appendix provides technical specifications for the survey of boundaries between public trust tidelands, submerged lands and adjacent uplands. Cole warns that these procedures should be determined on a case-by-case basis. All case citations are fully indexed, and references to journal articles, surveying information, and other material are provided. An index of terms comprises the final pages.

Laurie Lingle

LYNN GALLAGHER AND LEONARD MILLER, CLEAN WATER HANDBOOK, Government Institutes, Inc., Rockville, Maryland (1996); 439pp; ($89.00); ISBN 0-86587-512-X, softcover.

The *Clean Water Handbook* is a theoretical and practical guide to a clear understanding of federal clean water law. Lynn Gallagher and Leonard Miller have written a general handbook to guide practitioners and other interested persons through the comprehensive and complex structure of the Clean Water Act. The authors have extensive experience in environmental law. They previously co-authored the *NPDES Permit Handbook* (Government Institutes, 2nd ed., 1992). Mr. Miller, while working for the U.S. Environmental Protection Agency ("EPA") in 1976, directed changes in the NPDES permit program. From 1979 to 1980, he was the Acting Deputy Assistant Administrator responsible for enforcement of the EPA's water quality and hazardous waste rules.

The handbook is segmented into nine chapters, or sections, beginning with a brief overview of the various laws which culminated in the passage of the Federal Clean Water Act ("Act"). The first chapter includes elements of the Act, key terms, and statutory and regulatory definitions. The other chapters discuss the NPDES permit program; effluent limitations; effluent toxicity control; pre-treatment programs; storm water and non-point source discharges; preventing, reporting and responding to spills; wetlands and the dredge and fill permit program; and enforcement under the Act. Two helpful appendices contain a list of acronyms and a copy of the Act itself. The writing is clear and avoids legalese, yet without compromising detail. Each section begins with a content box which overviews the material presented at a glance. Pertinent regulations are discussed, as is relevant case law.

Chapter two, which is on the NPDES permit program, covers the various responsible authorities involved in obtaining a permit; the steps involved in completing the permitting process; and includes ref-

erences of applicable forms, followed by an explanation of types of variances. Chapter three focuses on the effluent limitations of a NPDES permit and how they are determined and regulated. The four technology-based limitations for direct dischargers are explained, as are two types of technology-based limitations for indirect dischargers. Whole effluent toxicity ("WET") testing and control, its elements and role in clean water compliance are discussed in chapter 4. An example of WET permit requirements shows a typical provision in the permits requirements.

Discharges into municipal or public sewer systems and the pretreatment program are outlined in chapter five. The chapter includes the roles of each level of government and the standards of the pretreatment program. A discussion of prohibitions is followed by a section on defenses against alleged violations. A lengthy section on enforcement explains the methods and applicable rules. The storm water program and definitions used in non-point source discharges are the thoroughly covered in chapter six. Chapter seven contains an overview of preventing, reporting and responding to oil spills. The process for notification of and exemption from reporting clarify the regulatory procedures under a NPDES permit. Chapter eight covers the 404 Program, including theory and practice involved with dredge and fill permits. The chapter also includes a discussion on liability and "takings" issues. The final chapter covers overall enforcement authority and procedures. A discussion on private enforcement ramifications is discussed in a section on citizen suit provisions.

The *Clean Water Handbook* makes a useful comprehensive guide to any person who is involved in clean water law. The information it contains provides an understanding of the federal, state and local enforcement authority that are clean water law.

James Fosnaught

C.C. LEE, SAMPLING, ANALYSIS, & MONITORING METHODS: A GUIDE TO EPA REQUIREMENTS, Government Institutes, Inc., Rockville, Maryland (1995); 256pp; $65.00; ISBN 0-86587-477-8, softcover.

The growth of environmentalism in the United States during the 1970s led to the proliferation of environmental laws. The statutes, rules, and regulations that have evolved since then require qualitative and quantitative measurement of chemical species that may have adverse effects on the human health or environment. As a result, thousands of chemicals are regulated, and the specific requirements for sampling, analysis and monitoring of these chemicals are found throughout the entire 40 Code of Federal Regulations ("CFR") from Part I to Part 1517. Finding information about these chemicals can be a tedious task for the environmental practitioner.

Lee notes that "[o]ne of the key elements to successful environmental protection is the conduct of environmental measurement and risk assessment studies." Environmental measurement includes sampling, analysis, monitoring, quality control and quality assurance. Risk

assessment involves: "(1) the determination of the kind and degree of hazard posed by an agent (such as a harmful substance); (2) the extent to which a particular group of people has been or may be exposed to the agent; and (3) the present or potential health risk that exists due to the agent."

Both environmental measurement and risk assessment require accurate identification of chemical species. This guide was developed to assist with this process. It covers the following areas:

1). A summary of the environmental laws and corresponding regulations in 40 CFR.

2). A chemical cross-reference for sampling, analysis, monitoring, and risk assessment regulations.

3). A list of chemicals, their emission standards, and their measurement methods under the requirements of the Resource Conservation and Recovery Act, the Safe Drinking Water Act, the Clean Water Act, and the Clean Air Act.

4). A list of sources from which health-related information can be obtained for performing risk assessment calculations.

The book consists entirely of tables and explanatory notes that are intended to be a reference for anyone involved in environmental protection activities. Based upon Dr. Lee's extensive experience in conducting engineering and environmental research projects, it should prove to be a useful tool.

Vicki L. Spencer

DONALD J. PISANI, WATER, LAND & LAW IN THE WEST, University of Kansas Press, Lawrence, Kansas (1996); 273pp; $29.95; ISBN 0-7006-0795-1, hardcover.

This collection of essays represents the finest works by the acclaimed western and environmental historian, Donald Pisani. Written between 1982 to 1994, these essays delineate how water, land and forests have played a central role in the development of the American West. Although the collection is divided into four sections, none should be considered in isolation, as each essay addresses the government's failure "to achieve justice, equity, or efficiency in the administration of natural resources." Pisani's position is that past and present public policy has lacked planning, cohesiveness, and leadership, resulting in the slow erosion of the nation's most valuable resources. It is his hope that past experiences will impact future policy in the areas of public land and resources.

Part One of this collection consists of three essays that address the topic of water rights in the West. The first essay provides an overview of the development of western water law in the nineteenth century. By 1900 prior appropriation was firmly established in the West, although it did coexist with riparian rights in parts of the Pacific Coast and the Great Plains. The second essay in this section explores the origins of the prior appropriation doctrine in two California mining districts. The doctrine, although dominant, was not altogether favored by the

miners, and Pisani discusses the ways in which mining conditions often led to a broad array of local water law. The last essay in this section, "State vs. Nation: Federal Reclamation and Water Rights in the Progressive Era" examines the historic struggle between the states and the federal government over water rights. Pisani's focus is on the Bureau of Reclamation's attempts to limit state control over water in the first decades after passage of the1902 Reclamation Act. As Pisani notes, one of the unfortunate outcomes of this struggle was the failure to make water law reform a precondition for federal aid. Consequently, the effectiveness of a national reclamation program was limited.

Part Two of the collection focuses on land. Pisani tracks the critical role that land played in the early development of our nation as increasing numbers of settlers arrived with each passing year. Not only did the continent's abundance of land help the newly emerging nation escape European despotism, but it gave individuals a new concept of freedom. As more people endured the hardships of the western expansion, there was an intensified belief in the principle of one's "natural right" to the land. Not surprisingly, this belief gave rise to considerable controversy. Pisani's essay on "Squatter Law in California, 1850-1858" provides insight into how diverse interests such as the treaty rights of Mexican grantees, the natural rights of squatters, and local traditions interacted to make development of the west unique.

Pisani's next essay, "Land Monopoly in Nineteenth Century California," carries the story of western expansion one step further. Initial settlement and the policy of preemption quickly gave way to the creation of a distinctly Californian economy. In the Midwest, "rampant land speculation characterized the *initial* phase of settlement but soon gave way to small farms, [but] in California monopoly became more rather than less entrenched as time passed." According to Pisani, the scarcity of water and the nature of irrigation agriculture caused these different patterns of landholding to emerge, in spite of federal policies encouraging small farming.

No history of western resources would be complete without a discussion of drought and the railroads. The final essay in Part Two examines the impact drought had on the western expansion, and the critical part railroads played in shaping land and water policy. Pisani walks the reader through the political and legal process that George Maxwell, a water rights lawyer from California, followed to encourage land law reform and a federal reclamation program. By forming an alliance of the major railroads, Maxwell succeeded in pushing the 1902 Reclamation Act through Congress. But, in Pisani's view, this was a limited victory as other federal legislation allowed cattle, timber, mining and other companies to continue to monopolize public lands.

Part Three examines the conservation movement's influence on natural resource policy. The focus is on conservation, the use of the nation's forests, and the ultimate impact on arid land reclamation. In addition to a discussion of the symbiotic relationship between forest preservation and reclamation, the essays touch upon the impact for-

estry policy has had on watersheds throughout the public domain, as well as the additional problems of soil erosion and siltation.

In Part Four, the final two essays examine federal water policy in the early twentieth century. Once again, there was hope that irrigation would transform the American West. In his essay, "Irrigation, Water Rights, and the Betrayal of Indian Allotment", Pisani introduces the reader to an array of policies intended to "civilize" Indians, and how implementation of these policies led to the betrayal of Indian water rights.

Finally, the collection ends with an essay entitled, "Reclamation and Social Engineering in the Progressive Era." Here, Pisani examines the "intellectual foundation of the reclamation movement" and how its proponents thought irrigation would transform the structure of American institutions. By offering land to the landless, labor was systematically redistributed from the crowded eastern seaboard to the west, new markets were established, and the concept of the "American Dream" was born. As Pisani notes, water and reclamation policies could be characterized as a form of social engineering.

Vicki L. Spencer

WILLIAM WHIPPLE, JR., COMPREHENSIVE WATER PLANNING AND REGULATION: NEW APPROACHES FOR WORKABLE SOLUTIONS, Government Institutes, Inc., Rockville, Maryland (1996); 200pp; $69.00; ISBN 0-86587-513-8, softcover.

Comprehensive Water Planning and Regulation provides the reader with practical information regarding effective management of scarce water resources. This book serves as an excellent guide for anyone participating in water resource planning and decision making processes, particularly at the federal level. Within just 172 pages, the reader will find historical background of water resource conditions, evaluation of current management systems, and suggested ways to overcome barriers to effective management. Useful summaries of the problems and solutions presented are provided at the end of each chapter.

Mr. Whipple's analysis begins by outlining the current status of our nation's most pronounced water resource problem: the conflict between EPA regulatory goals and Corps of Engineers planning and development goals. The conflict is really one of economic proportions, centering on the costs associated with increased government regulation. Demand for water is increasing with population growth and changes in our environment. Mr. Whipple contends that while public opinion supports greater regulation, EPA's response to that public opinion neglects to address the need to maintain and expand our water supply. The problem, according to Mr. Whipple, is that EPA's regulatory criteria represent "non-negotiable absolutes" that do not account for geographical variances or cost.

Chapter two provides a history of federal water resources planning from pre-World War II through the Reagan era. This history discusses

the deficiencies and positive effects of federal planning on construction agencies such as the Corps of Engineers. Mr. Whipple points out that industry considerations were not historically included in regulatory drafting. A section regarding the effects of draining and pollution on aquatic habitats with respect to endangered species is also included. Finally, Mr. Whipple addresses recent programs such as the Clinton administration's support for state and federal partnerships.

Chapter three provides an overview of those water resources planning concepts a careful decision maker should consider, including: cost/benefit analysis, flood control, hydroelectric power, navigation, irrigation, recreation, water supply, national and regional economic benefits, economic evaluation of environmental benefits, environmental decision making, types of and effects of pollution, and criteria for scientific validity.

Chapter four covers methods of comprehensive planning including its objectives, how such planning can be hindered. Issues of construction and human health are examined. Case study examples are reviewed to illustrate the various issues involved in comprehensive planning and coordination within various river basins. The systems discussed include the Cedar and Green Rivers in Washington state, the Columbia and Snake Rivers, the Colorado River, the South Platte River, the Great Lakes, the Trinity River Basin, the Marais des Cygnes-Osage River Basin, the Kanawha River, the Apalachicola, Chattahoochee, and Flint Rivers, the James River, the Potomac River, and the Klamath Basin. Mr. Whipple discusses issues of flood control, water supply, preservation of species, and drought. Each contains a summary evaluation and critique of management needs and approaches.

The chapter continues with a discussion of modeling and gaming concepts including their modern use and the benefits of such use. Drought management is covered in-depth. Mr. Whipple discusses strategic and tactical planning problems, and outlines several examples of planning results highlighting various river basin Drought Preparedness Studies ("DPS"). Problems, prior policies, and a critique of current needs is provided with respect to wetlands and ground water control. Finally, the chapter addresses sustainability emphasizing the use of resources such that societal well being can be maintained over time.

In chapter five, Mr. Whipple focuses on runoff control. The chapter begins by examining the relationship between water quality and non-point source control. Then point source control is examined, including the technology based approach, control of particulate pollution, and regional storm water management systems. EPA regulations are summarized including municipal and industrial permit requirements. The EPA's current views on the need for flexibility and environmental impacts are also presented.

Chapter six offers comprehensive suggestions for new approaches to planning. Concerns of the states are presented in conjunction with inherent planning problems that result from federal and state conflicts. Environmental, human health, ecological, and economic objec-

tives are discussed. Finally, the types of planning and organization required to address those objectives is presented.

The final chapter applies the various planning mechanisms presented throughout the book to the international arena. Water is of high priority and demand in other countries. Mr. Whipple generally discusses the historical, technological, and industrial differences between various countries, then offers a more specific analysis of several countries including the Middle East, Taiwan, Japan, Mexico, Argentina, and Brazil.

Mr. Whipple's professional background includes planning and building experience with the Corps of Engineers, conducting and directing water resources research at the University level, managing statewide water supply and pollution prevention programs, and consulting. Mr. Whipple has masters degrees in engineering, economics, and politics. Mr. Whipple's major conclusions were taken from his prior article, *Integration of Water Resources Planning and Environmental Regulation,*" JOURNAL OF WATER RESOURCES PLANNING AND MANAGEMENT, ASCE, (1996).

Debbie Eiland