Water Matters!

Water Articles Written for
Members of the New Mexico
State Legislature and the Public
2015

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The Utton Transboundary Resources Center
The University of New Mexico
School of Law

THE UNIVERSITY of NEW MEXICO SCHOOL of LAW

The Utton Center

2015

The Utton Center
TRANSBOUNDARY RESOURCES

Utton Transboundary Resources Center
Adrian Oglesby, Director

Darcy S. Bushnell
Ombudsman Program Director

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Utton Transboundary Resources Center
The University of New Mexico
School of Law, MSC 11-6070
1 University of New Mexico
Albuquerque, NM 87131-0001
Tel: 505-277-3253 • Fax: 505-277-3319
E-mail: uttoncenter@law.unm.edu
Website: http://uttoncenter.unm.edu

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Foreword

Welcome to the ninth edition of Water Matters! The tradition of updating articles and adding new ones continues this year, with refinements to our articles on adjudications, groundwater, drought, priority administration, and more. We also continue our tradition of recognizing important New Mexicans who have passionately committed themselves to improving New Mexico's water law and management. The Utton Center dedicates this issue of Water Matters! to the memory of two remarkable New Mexicans, G.X. McSherry, and Ella Jaz Kirk. One was a longtime New Mexico political legend and the other was a dynamic young river advocate who was lost all too soon. Both continue to inspire others through their participation in New Mexico's politics.

Water Matters! has become a water encyclopedia for New Mexico that grows every year. To reduce printing costs, several years ago we began to print only our new articles for the short session of the State Legislature. This year we are providing Water Matters! in its entirety on a flash drive to all legislators. Those who prefer a hard copy are welcome to request one from us. The flash drive also contains many of the Utton Center's historic publications. We hope this flash drive will become your go-to reference for New Mexico water issues.

Water Matters! will continue to grow and be refined every year. As we begin anew the process of developing the next edition, we look forward to receiving your input. The Utton Center is here to serve all New Mexicans, and we are particularly pleased that it has found its way into so many New Mexico classrooms. If there are topics you would like to see covered, please let us know.

We are very grateful for all the assistance we had with this edition. In particular, law students did much of the work this year. Many thanks to Diego Urbina and Anne Minard for their contributions. I am also very grateful for the hard work Darcy Bushnell of our Ombudsman Program and Laura Burns, our Program Manager, put into editing and producing this edition.

Adrian Oglesby
Director
Utton Transboundary Resource Center
UNM School of Law

The Utton Center dedicates this issue of *Water Matters!* to the memory of Grover Xavier McSherry.

Dedication
Grover Xavier McSherry

Grover Xavier McSherry was a New Mexican political giant and longtime Luna county farmer who had a lifelong passion for agriculture. McSherry dedicated most of his agricultural endeavors to improving the marketing of crops and livestock and advocating for sensible and balanced water use for all communities. "G.X.," as many knew McSherry, was born on November 23, 1924, in Dwyer, New Mexico. The son of a Pennsylvania schoolteacher who came to New Mexico to visit and ended up staying, G.X. grew up in the Mimbres Valley during the great depression and experienced the devastating consequences of the dustbowl. The tough economic times shaped McSherry and his pride in the apples his family produced in the valley every year—a crop that has long roots on both sides of his family.

G.X. was a man who lacked the financial means to attend college; however, this did not deter him from becoming a staunch supporter and advocate for New Mexico State University, an agriculturally focused institution. During his tenure in the House of Representatives, McSherry would secure funding for the expansion of research, modernization of facilities, and the creation of new facilities at the University. As Chair of the Agricultural Committee, McSherry spearheaded the foundation of the New Mexico Farm and Ranch Heritage Museum, which he felt would play an important role in educating people about the importance of water in producing our food and fiber.

As education was important to both G.X. and his wife, they were adamant that all of their children attain a post-secondary education—and all of them did. Moreover, four of their children went on to become Aggies and attained degrees from New Mexico State University. In a fitting and well-deserved tribute to recognize the incomparable contribution of McSherry, New Mexico State University awarded him an honorary doctorate in 2003.

During World War II McSherry met the love of his life and the mother of his children. A first-generation American, Clara Jo (Jody) was born to Italian immigrants who settled on a homestead seven miles east of Deming. In December of 1945, G.X. and Jody were married and chose to reside on the

homestead. The McSherry family grew as Jody gave birth to seven children. In the seven decades G.X. and his family have farmed in Luna County, their farming endeavor has expanded from a hundred acres to over six hundred and has incorporated high-tech methods. Reliant on groundwater, they remained constantly concerned about the water it took to support their livelihood and that of many others.

The passion for agriculture and commitment to public service, instilled in him by his parents, inspired G.X. to run for the New Mexico House of Representatives. He was elected to the House by the 32nd district in 1982. McSherry went on to serve an additional seven terms, leaving his office in 1998. During his time at the Roundhouse, McSherry focused his efforts on agriculture with keen advocacy for the beef industry and the protection of water rights. McSherry used his small business background and experience to become an effective leader on many issues concerning New Mexicans. One of McSherry's pivotal roles as a legislator originated from his service as a six-term Chairman of the Agriculture and Water Committee. McSherry's advice was so in demand and so respected that then New Mexico Governor Gary Johnson appointed McSherry to the state's Water Trust Board. In addition to his service on the Water Trust Board, McSherry managed to serve on the Governor's Blue Ribbon Task Force on Water and was regarded by many to be an expert in matters relating to the history of water rights and use in New Mexico.

After years of working to make New Mexico a little bit better than he had found it, the Honorable Grover Xavier "G.X." McSherry left New Mexico to the next generation of leaders, when he passed away on May 5, 2014, in Deming. He was with his family in the part of the state that he always called home. Before he died, McSherry described that he and his wife spent their lives on the farm "raising the three C's; cotton, cattle, and children." To this day, the McSherry family continues to be invested in New Mexico as they raise cattle, grow crops, and remain careful stewards of the New Mexico land and water their father cherished.

By Diego Urbina, University of New Mexico School of Law, Class of 2016

In Memoriam Ella Jaz Kirk 1999–2014

In 2014 the New Mexico Legislature issued a proclamation extending its condolences to the friends and family of Ella Jaz Kirk. Miss Kirk died unexpectedly in a plane crash on August 15, 2014 with Michael Mahl, Ella Myers, and Dr. Peter Hochla as they returned from viewing the Signal Fire damage in the Gila National Forest.

Although she was only fourteen years old, Ella was highly engaged in the political process, environmental education, and river stewardship. Ella lived most of her life in Silver City and Gila Hot Springs, where she was a member of the local Fiddle Club. Ella also participated in a local goat cooperative and raised money for Heifer International.

Ella was an honor roll student at Aldo Leopold Charter School. She served as a teacher's aide, educating elementary students about ecology, watershed health, and conservation. Ella was to be the next Editor-in-Chief of the Aldo Leopold Charter School Newsletter. She was a remarkable writer and contributed writings to a local river restoration blog. Prior to school camping trips, she taught staff and students about orienteering. Ella and her fellow classmates on that tragic flight were expert members of the Youth Conservation Corps Ecological Monitoring Crew that won first place at the 2014 New Mexico EnviroThon.

When she learned about proposed Gila River Diversion projects, Ella became engaged in the politics of Southwest New Mexico and the Roundhouse. Having grown up on the Gila River, she felt passionately about protecting its unique ecological diversity and beauty. She spoke at Grant County Commission meetings and gave eloquent testimony to the Senate Conservation Committee on the Senate Floor. She gathered over 6,400 signatures on a petition that she delivered to the Interstate Stream Commission and Governor Martinez. The Audubon Society honored Ella's efforts by naming her its 2014 Southwest Women in Conservation Honoree.

By Maxine Paul

Water, that vital substance that bubbles up from hidden springs in oak nurseries where moss grows thick and slips down Douglas Fir hillsides into mirrored lakes, will keep humans alive if we treat it with careful thought and reverence. Water has always been the difference between life and death, boom and bust, and it will be the difference once again between a sustainable future or no future at all.

—Ella Jaz Kirk

Contents

Basic Water Law Concepts

History of New Mexico Waters: A Brief Overview

Water problems have always plagued New Mexico. Its inhabitants have struggled with how to survive in a land thirsty for water from long before recorded history. Just as past leaders of this arid land have tried to implement policies and laws to distribute the precious resource of water equitably, our present and future leaders will continue to wrestle with how to most wisely manage water in New Mexico.

Modern water law has been forged by history. Concepts, attitudes, the language found in today's constitution, statutes, and judicial decisions addressing New Mexico's water law have long-standing historical roots. A brief overview of the peoples who have inhabited New Mexico provides a basic understanding of current water law.

Pueblos and Tribes: New Mexico's indigenous peoples have been harnessing water for irrigation since as early as 800 A.D. Ancient canals still wind throughout the modern lands of New Mexico. When the Spaniards arrived in the mid 1500s, the Pueblos and Navajos were established agrarians, with developed irrigation canals and ditches. Early settlers noted the growing of corn, beans, melons, and other crops that depend upon a wide variety of irrigation methods. The Pueblo Indians are the first people known to have placed water to beneficial use in New Mexico, which today entitles them to the earliest priority dates for their water rights.

Spanish Influence: The Spaniards brought to the new world their legal principles for governing water usage. Central to their water management approach was the acequia, a community managed water distribution system. Developed by the Moors and Berbers, the acequia was a water conveyance system common in fifteenth-century Spain. Spanish settlers brought this system into the New World where it matured into the community acequia. The acequia management system became the generally accepted basis for water administration in New Mexico. The first acequias were constructed in New Mexico by the earliest Spanish colonists in about 1598 at Chamita on the lower Rio Chama.

> "The unappropriated water of every natural stream, perennial or torrential, within the state of New Mexico, is hereby declared to belong to the public and to be subject to appropriation for beneficial use, in accordance with the laws of the state. Priority of appropriation shall give the better right."
>
> Constitution of the State of New Mexico, Article XVI, Irrigation and Water Rights

> "Pursuant to the several statutes relating to the administration of the appropriation and use of water, including priority administration, the State Engineer must see to it that senior water rights are not impaired by new appropriations."
>
> *Bounds v. D'Antonio,* 2013-NMSC-037, 306 P.3d 457

Early settlers noted the growing of corn, beans, melons and other crops which depended upon a wide variety of irrigation methods.

From a Mexican Province to an American Territory: Under both Spanish and Mexican rule, the equitable distribution of water was a frequently contested issue. Most disputes were resolved at the local level, but provincial governors sometimes determined the outcome of more difficult cases. During times of shortage, locally imposed interim measures allowed contending groups to share the shortage until precipitation brought increased stream flow. Although not everyone was happy with the process, it provided community participation and reflected time-honored procedures for water management. According to historian John Baxter, the goal seemed to be the healing of rifts within the community rather than determining a legal winner and loser.

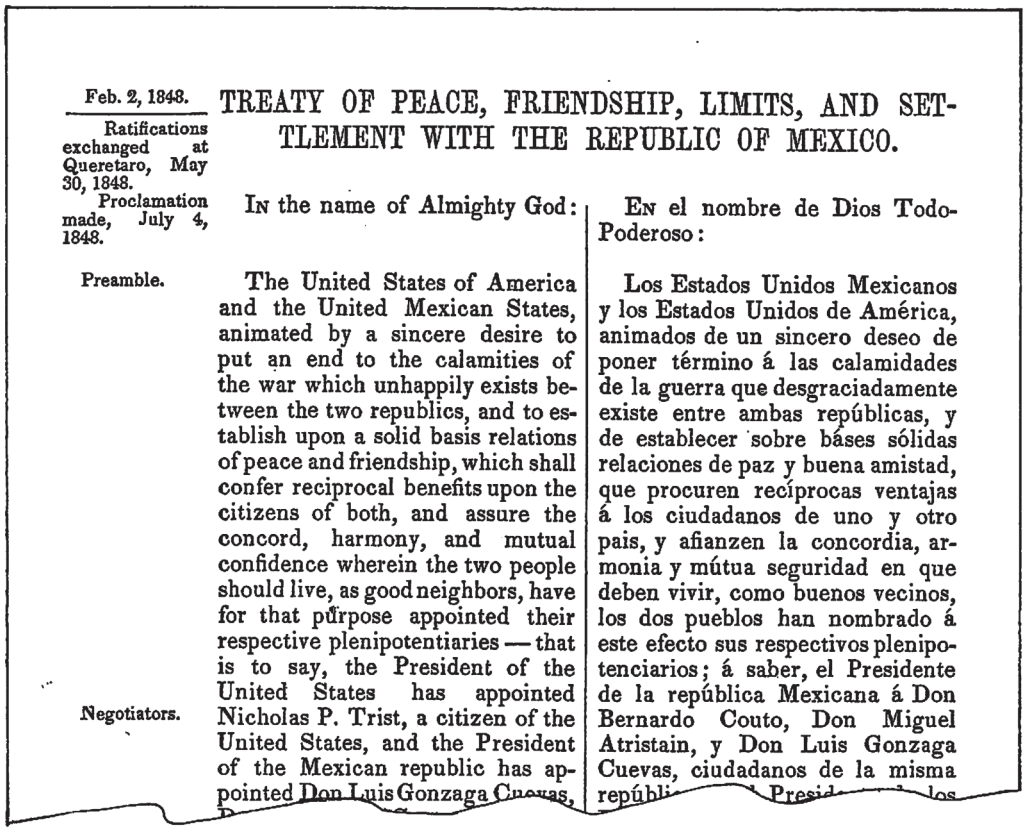
During times of shortage, locally imposed interim measures allowed contending groups to share the shortage until precipitation brought increased stream flow.

Feeling national growth and expansion to be its "Manifest Destiny," the United States began to look to the lands of New Mexico. In September of 1846, a month after General Stephen Watts Kearny led the U.S. Army of the West unopposed into Santa Fe, he implemented a legal code for the new territory. It provided protection to the inhabitants of their life, property, and religion. The Kearny Code stated that the "laws, heretofore in force concerning water courses, . . .shall continue in force."

In 1848, the United States and Mexico entered into a peace treaty to end the Mexican-American War. The Treaty of Guadalupe Hidalgo transferred New Mexico and California to the United States. Five years later, the strip of land in the most southern parts of New Mexico and Arizona was added under the Gadsden Treaty. Under both treaties, inhabitants' pre-existing property rights are to be respected.

New Mexico water law began changing in the 1880s with the coming of the railroad and outside investors. The territorial laws, written in the late nineteenth century and

Treaty of Guadalupe Hidalgo



Feb. 2, 1848.

Ratifications exchanged at Queretaro, May 30, 1848.

Proclamation made, July 4, 1848.

TREATY OF PEACE, FRIENDSHIP, LIMITS, AND SETTLEMENT WITH THE REPUBLIC OF MEXICO.

In the name of Almighty God:

En el nombre de Dios Todo-Poderoso:

Preamble.

The United States of America and the United Mexican States, animated by a sincere desire to put an end to the calamities of the war which unhappily exists between the two republics, and to establish upon a solid basis relations of peace and friendship, which shall confer reciprocal benefits upon the citizens of both, and assure the concord, harmony, and mutual confidence wherein the two people should live, as good neighbors, have for that purpose appointed their respective plenipotentiaries — that is to say, the President of the United States has appointed

Negotiators.

Nicholas P. Trist, a citizen of the United States, and the President of the Mexican republic has appointed Don Luis Gonzaga Cuevas,

Los Estados Unidos Mexicanos y los Estados Unidos de América, animados de un sincero deseo de poner término á las calamidades de la guerra que desgraciadamente existe entre ambas repúblicas, y de establecer sobre bases sólidas relaciones de paz y buena amistad, que procuren recíprocas ventajas á los ciudadanos de uno y otro pais, y afianzen la concordia, armonia y mútua seguridad en que deben vivir, como buenos vecinos, los dos pueblos han nombrado á este efecto sus respectivos plenipotenciarios; á saber, el Presidente de la república Mexicana á Don Bernardo Couto, Don Miguel Atristain, y Don Luis Gonzaga Cuevas, ciudadanos de la misma

later adopted by the State through its constitution and statutes, were based on Western mining laws and embraced the concept of prior appropriation. Miners who staked claims needed to use water and with those needs came the question of how to determine rights to stream flow diversions. Since titles to mining claims were based on "first in time, first in right," the same principle was applied to the appropriation of water, resulting in the development and adoption of the prior appropriation doctrine.

In an 1891 Territorial Supreme Court case, *Trambley v. Luterman*, the Court specifically identified prior appropriation as the law of New Mexico. The Court found that an earlier appropriation of water for a grist mill on the Gallinas River near Las Vegas, New Mexico, takes precedence over a subsequent owner's assertion of a water right under the common law doctrine of riparian rights. The Court's rejection of *riparian rights* in favor of *prior appropriation* created a precedent that has been since consistently followed in the state. In 1905, the territorial assembly reduced existing practices regarding surface-water use to statutory form without substantial alteration. New Mexico's system closely paralleled the appropriation doctrine developed by settlers in other western states and territories.

In 1907, New Mexico's territorial legislature passed a comprehensive code of water law, which still forms the basis for the State's water laws and regulations today. In addition to codifying certain rights and practices, the legislature centralized the administration of water with the creation of the territorial engineer (now the State Engineer). This official has general authority to supervise the waters of New Mexico including the measurement, appropriation, and distribution of water.

Statehood: When New Mexico became a state in 1912, its constitution formally adopted the principles of public ownership of water and the doctrines of prior appropriation and beneficial use found in the 1907 Water Code.

In 1907, New Mexico's territorial legislature passed a comprehensive code of water law, which still forms the basis for the State's water laws and regulations today.

Early in its statehood, New Mexico entered into three compacts with neighboring states. These compacts attempted to minimize conflicts over the Colorado and La Plata rivers and the Rio Grande. Compacts were seen as an alternative to litigation with neighboring states. New Mexico is now a party to eight interstate compacts, administered by the New Mexico Interstate Stream Commission.

The federal government also played a significant role in early New Mexico water law, entering into a Treaty with Mexico for delivery of Rio Grande waters in 1906. The federal government rehabilitated irrigation works on the lower Pecos River in 1908, and formed the Carlsbad Irrigation District. The federal government then built Elephant Butte Dam to serve the Rio Grande Project in 1916. Federal-state relations over water issues continue to be significant, especially in regard to financing water infrastructure projects, protecting water quality, and recovering endangered species.

Legal Concepts: A Brief Overview

Prior Appropriation: The doctrine of prior appropriation states that when shortages occur, the right to use water is determined by the chronological order in which the water

The doctrine of prior appropriation states that when shortages occur, the right to use water is determined by the chronological order in which the water was put to beneficial use. "Senior" appropriators are served first, and in a water-short year, "junior" appropriators may receive a reduce amount or no water, depending on the supply.

Article 16 of the New Mexico Constitution provides that the water of every natural stream, perennial or torrential, not appropriated prior to statehood belongs to the public and is subject to appropriation for beneficial use.

was put to beneficial use. "Senior" appropriators are served first, and in a water-short year, "junior" appropriators may receive a reduce amount or no water, depending on the supply. A senior user is the first person to apply a quantity of water to a specific beneficial purpose. Subsequent users from the same source can use the remaining water for their own beneficial purposes, provided that they do not impinge on the rights of prior appropriators. The key word is "use" as the doctrine awards a water right to the person actually using the water.

Beneficial Use: Fundamental to maintaining water rights under a system of priority administration is the requirement that a user apply the water to a beneficial use. Beneficial use does not include the wasteful use of water. In fact, either wasting water or using water without authorization is a crime in New Mexico. A water right may be lost through "forfeiture" or "abandonment." Under either mechanism, the owner loses the right for failure to "beneficially use" the water. The idea is that if a senior water user no longer appropriates water, the water can be freed up for someone else to use. The New Mexico Constitution states "Beneficial use shall be the basis, the measure and the limit of the right to the use of water."

The New Mexico Constitution does not define beneficial use, but judicial decisions and statutes characterize it as including irrigation, domestic, commercial and industrial, game and fish, and endangered species uses. There is no priority scheme *by type of use* for allocation of water during shortages.

Article 16 of the New Mexico Constitution provides that the water of every natural stream, perennial or torrential, not appropriated prior to statehood belongs to the public and is subject to appropriation for beneficial use. A water right is actually a right to "beneficially use" water, not a right to own water. Water rights can be conveyed with real property or severed from the property and sold separately. When a water right is sold, it retains its original appropriation date and is limited to the amount of water historically consumed for that use.

Pre-1907 Water Rights: The New Mexico Constitution recognizes and confirms all existing appropriations of water for useful or beneficial purposes. These pre-existing vested water rights date from the initial use of that water. After 1907, a permit from the State Engineer was required for any new appropriations of surface-water. One may still claim pre-1907 surface-water appropriations by filing a declaration of use with the Office of the State Engineer (OSE). A limited review of a declaration is performed to be sure there is no overlap with another declaration. However, under current practice, outside of the adjudication process, the State Engineer will not formally recognize pre-1907 water rights until a transfer or change of use is proposed, at which time the OSE will undertake a validity study. The practice for determining the validity of pre-1907 rights may vary from basin to basin according to the type of records available.

Surface Appropriations: Since 1907, a person may use unappropriated surface-water or transfer existing water rights after receiving a permit from the State Engineer. The Engineer must find that there is water available and that approval of the application will not impair existing rights, be detrimental to the public welfare of the state, or be contrary to water conservation. The provisions for public welfare and conservation, although not defined, were added to the law in 1985. If the new use of water meets these criteria, the State Engineer will issue the requested permit. Once the water has been put to beneficial use as described in the permit, the applicant may

submit proof of the beneficial use of the water to have the water right formally licensed by the State Engineer.

Groundwater: The State did not regulate groundwater use until 1931 when the legislature declared groundwater to be public and subject to appropriation for beneficial use. In basins that are "declared," that is, in areas where the State Engineer deemed it necessary to limit the unregulated and unlimited use of groundwater, the State Engineer requires permits for new groundwater appropriations like those required for surface-water appropriations. The State Engineer makes these designations based upon the source aquifers being non-rechargeable or connected to streams. The criteria for issuance of groundwater permits are essentially the same as for surface-water claims. In 2006, the State Engineer completed the declaration of all groundwater basins within the state. For more information, please see the chapter "Groundwater" in this edition of *Water Matters!*.

Priority and Alternative Administration: Under the doctrine of prior appropriation, water rights owners are entitled to a given quantity of water for a specified purpose. Each water right also has an associated priority date based on when owner took the first steps to put the water to beneficial use. Each year, the senior owner who has the earliest appropriation date may use up to the full amount of the water right, provided that the water source can supply it. Then the owner with the next earliest appropriation date may use his or her full allocation and so on. During shortages, junior owners might not receive their full allocation or even any water at all. Under the prior appropriation system, shortages are not shared and do not result any diminishment of the amount a senior appropriator can take, if sufficient water is available. Understandably, priority administration can be technically and politically challenging. For instance in years of low runoff, it is difficult to prevent the delayed impacts on senior surface-water right owners from pumping that has occurred in previous years by junior groundwater users.

The State's statutes charge the State Engineer with pursuing water rights adjudications as one of its water management responsibilities.

The New Mexico Supreme Court has recognized the broad discretion of the State Engineer to administer water within New Mexico's version of the prior appropriation system. Historically, there have been many water sharing agreements among water users in times of shortage, including water rotation and scheduling agreements. The State Engineer encourages local communities' agreements that avoid the need to strictly enforce the priority system.

The State Engineer has also been authorized to administer water right priorities in areas where the courts have not yet formally determined the priority dates and quantities of existing water rights through adjudication. With the establishment of water districts and water masters, the State Engineer can enforce priorities or local agreements, even in the absence of fully adjudicated water rights. The state Supreme Court upheld this authority in the 2012 case, *Tri-State v. D'Antonio*. For more information, please see the chapter "Active Water Resource Management" in this edition of *Water Matters!*.

Adjudication: The State's statutes charge the State Engineer with pursuing water rights adjudications as one of its water management responsibilities. The purpose of an adjudication is to formally describe water uses in a stream system so that the State Engineer can effectively carry out his statutory mandate to apportion and administer water within that system. An adjudication results in a final decree that defines and formalizes all rights to a stream system's water supply. The decree quantifies and legally determines: all surface-water rights that predate the State's adoption of the 1907 water code; all groundwater rights that predate the State Engineer's assertion of administrative authority over a groundwater basin; all water rights that are subject to State Engineer permitting; and the relative

priorities of all water rights, both Indian and non-Indian, that share a common hydrologically connected source. Ultimately these adjudications should help the State define its existing water rights, meet its interstate compact obligations, manage shortages, and protect the state's waters.

For more information, please see the chapter "Adjudication" in this edition of *Water Matters!*.

By Brigette Buynak, Esq. (2008)
Updated by Adrian Oglesby, Esq.

Sources and Contributors

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Contributor
Stephanie Beninato, Ph.D., J.D.

New Mexico Water Law Case Capsules

New Mexico has a rich body of water law. This list contains some of the key cases decided in the state and federal courts of New Mexico with *very brief* descriptions of the rulings. The finalized cases have been arranged by topic. This chapter is intended to be a quick and handy reference guide and not a thorough summary of the facts and law of each case. This year we have also included a list of water law statutes.

Water Rights: Beneficial Use; Forfeiture; Priority; Representation

State of New Mexico, ex rel. Erickson v. McLean, 1957-NMSC-012, 62 N.M. 264, 308 P.2d 983. "Beneficial use" is the use of such water as may be necessary for some useful and beneficial purpose in connection with land from which it is taken. No one has right to use or divert water except for beneficial use.

> "Beneficial use is the use of such water as may be necessary for some useful and beneficial purpose in connection with land from which it is taken. No one has right to use or divert water except for beneficial use."
>
> *State ex rel. Erickson v. McLean*

Carangelo v. D'Antonio, No. 26,757, Slip Op. (N.M. Ct. App. 2014-NMCA 032, 320 P. 3d 492, Nov. 26, 2013). A diversion of native water to supply a non-consumptive beneficial use requires a permit for appropriation. The State Engineer has the authority to determine whether a new non-consumptive beneficial use would adversely impact "available water" in a fully appropriated basin and whether to issue a permit.

Kaiser Steel Corp. v. W.S. Ranch Co., 1970-NMSC-043, 81 N.M. 414, 467 P.2d 986. For the exercise of eminent domain, the beneficial use of water is a public purpose. A water right holder may condemn a right-of-way in order to put water to beneficial use.

State of New Mexico, ex rel. Reynolds v. South Springs Co., 1969-NMSC-023, 80 N.M. 144, 452 P.2d 478. Forfeiture is a statutory penalty for four continuous years of nonuse of a water right. In contrast, abandonment derives from the water right holder's intent to relinquish the right. A long period of nonuse, alone, does not constitute intent to abandon, but the burden shifts to the holder of the right to explain the nonuse.

State of New Mexico, ex rel. State Engineer v. Pecos Valley Artesian Conservancy District, 1983-NMSC-044, 99 N.M. 699, 663 P.2d 358. Priority

administration of water rights need not wait for a final adjudication decree so long as due process rights are protected.

State of New Mexico, ex rel., State Engineer v. Mendenhall, 1961-NMSC-083, 68 N.M. 467, 362 P.2d 998. The priority of a water right "relates back" to the date that the owner of the right initiated the process of putting water to beneficial use, so long as the owner is reasonably diligent in maintaining progress toward completion.

State of New Mexico, ex rel. State Engineer v. United States of America, et al. (San Juan River Adjudication), CV-75-184, Case No. AB-07-1, Memorandum Opinion and Order Granting Motions to Strike, November 30, 2011. Individual water owners using a community ditch are necessary parties in a lawsuit adjudicating their water rights. The ditch cannot represent the diverse interests of the individual owners. However, when the ditch pursues an interest it has in common with its individual users, it has legal standing to act on behalf of its members. This does not mean that the members automatically become parties to the lawsuit, nor does it mean that a law firm representing the ditch necessarily represents the members.

Impairment

Montgomery v. Lomos Altos, Inc., 2007-NMSC-002, 141 N.M. 21, 150 P.3d 971. The State Engineer must evaluate the potential impairment of *all* water rights at the move-to location and not just those of the protestants.

Mathers v. Texaco, 1966-NMSC-226, 77 N.M. 239, 421 P.2d 771. The State Engineer determines what constitutes "impairment." Some lowering of the water table or some change in water quality does not necessarily require a finding of impairment of existing rights.

Clodfelter v. Reynolds, 1961-NMSC-003, 68 N.M. 61, 358 P.2d 626. The right to change the point of diversion, including a change from surface to groundwater, is an inherent element of the property right in water, subject to non-impairment of other's water rights.

State Engineer Authority

Bounds v. D'Antonio, 2013-NMSC-037, 306 P.3d 457. The domestic well statute, NMSA 1978, § 72-12-1.1, provides that the State Engineer "shall issue" domestic well permits. Since the issuance is mandatory, the State Engineer does so without conducting an assessment of water availability or impairment to others. The statute does not violate the prior appropriation doctrine. The domestic well statute is a permitting statute. The constitutional provision for priority administration determines how water rights are administered. Domestic permits are administered in the same manner as all other water rights. All water rights are inherently conditional, being dependent upon the availability of water.

Hanson v. Turney, 2004-NMCA-069, 136 N.M. 1, 94 P.3d 1. A State Engineer water permit provides permission to develop a water right with a specific place and a beneficial use. A permit does not constitute a water right in and of itself.

Tri-State Gen. & Trans. Ass'n., Inc. v. D'Antonio, 2012-NMSC-039, 289 P.3d 1232. Under NMSA 1978, § 72-2-9.1, the State Engineer has the authority to adopt regulations for administering water rights in the event of a water shortage through the curtailment of junior priority rights. In 2004, the State Engineer promulgated the Active Water Resource Management (AWRM) regulations to address water administration where a water rights adjudication had not been completed. In 2012, the N.M. Supreme Court affirmed the legislature's grant of authority to the State

> The State Engineer must evaluate the potential impairment of all water rights at the move-to location and not just those of the protestants.
>
> *Montgomery v. Lomos Altos, Inc.*

Engineer to promulgate the AWRM regulations and to use the types of evidence listed in the regulations for determining priority. The Supreme Court also held that AWRM regulations are not unconstitutionally vague and do not violate due process.

City of Albuquerque v. Reynolds, 1962-NMSC-173, 71 N.M. 428, 379 P.2d 73. Conjunctive management of surface and groundwater rights is necessary to protect senior water right users and is within the authority of the State Engineer. The authority to grant or deny an application to appropriate water includes the authority to impose conditions to insure that a new appropriation does not impair existing rights.

Groundwater Rights

Stennis v. City of Santa Fe, 2008-NMSC-008, 143 N.M. 320, 176 P.3d 309. A permit from the State Engineer to drill a domestic well does not supersede a municipal ordinance restricting domestic wells.

Herrington v. Office of the State Engineer, 2006-NMSC-014, 139 N.M. 368, 133 P.3d 258. A *Templeton* well need not be located upstream of the surface point of diversion, as long as it taps groundwater that previously fed the surface supply.

Templeton v. Pecos Valley Artesian Conservancy District, 1958-NMSC-131, 65 N.M. 59, 332 P.2d 465. A senior surface-water user, whose surface supply is adversely affected by junior wells, is entitled to drill a supplemental well to recover his full appropriation. The well may access only groundwater that originally fed the surface supply.

Endangered Species

Rio Grande Silvery Minnow v. Bureau of Reclamation, 601 F.3d 1096 (10th Cir. 2010). Environmental groups sued the United States Bureau of Reclamation and the United States Army Corps of Engineers in federal court under the Endangered Species Act, challenging the validity of a biological opinion (Opinion) issued by the U.S. Fish and Wildlife Service. The Opinion concerned the effects of federal water project activities on the endangered Rio Grande silvery minnow. The environmental groups argued that the Opinion, then in effect, did not adequately consider all water in the Rio Grande, including the water under contracts to diverters such as the City of Albuquerque. During the course of litigation, a new Opinion was issued in 2003, which rendered the litigation "moot."

> The City of Albuquerque was granted a permit to divert surface water from the Rio Grande and then return it to the river without consuming any of it.
>
> *Carangelo v. D'Antonio*

After numerous hearings, court decisions and appeals to the 10th Circuit Court of Appeals on various issues, a decision was rendered in April of 2010 that essentially has vacated all rulings in the case. The issues raised in the case about federal use of water for endangered species remain unresolved.

The 2003 Opinion expired in the spring of 2013. Although federal and non-federal water management agencies are working to complete a new opinion, a new one has not been issued as of December of 2013.

Please go to **http://uttoncenter.unm.edu/pdfs/Silvery_Minnow_litigation.pdf** for a thorough summary of the eleven years of litigation in federal court.

Ongoing Litigation

State of New Mexico v. United States, et. al., U.S. Dist. Ct., Dist. of N.M., 2011-CV-691. On August 8, 2011, the New Mexico Attorney General filed a lawsuit against the U.S. Bureau of Reclamation (Reclamation) over a purported change in the accounting and allocation of the water in the Rio Grande Project. In late July of 2011, Reclamation allegedly reallocated

approximately 33,000 acre-feet of New Mexico Compact credit water so that water could be made available for release to Texas. In 2008, a new Operating Agreement was implemented between the Elephant Butte Irrigation District (EBID), the El Paso County Water Improvement District No. 1 (EP #1) and Reclamation. The new agreement changed the method of allocation of Rio Grande Project waters. The complaint filed by the Attorney General's Office alleges the new operational protocol results in a dramatic shift in the net allocation of Project water. Under the previous protocol, EBID received 57 percent of the water and EP #1 received 43 percent. These percentages were based on irrigated acreage in each of the districts. The Attorney General argues that the new protocol results in 38 percent allocation of Rio Grande Project water for EBID and 62 percent for EP #1. The districts assert that the new operating agreement takes into account groundwater withdrawals by EBID farmers as well as irrigated acreage. The federal court has stayed this case until the U.S. Supreme Court has decided whether to take *Texas vs. New Mexico and Colorado*, U.S. Jan. 8, 2013, CV No. 22O141 ORG. For more information, please see the chapter "Water Litigation in the Lower Rio Grande" in this edition of *Water Matters!*.

Augustin Plains Ranch LLC v. Verhines et al., No. 2012-CV-08. Augustin Plains Ranch LLC filed an application with the New Mexico State Engineer in 2008 for a permit to develop 37 wells with a maximum depth of 3,500 feet and to appropriate 54,000 acre-feet of groundwater per year for any uses within New Mexico. The wells were to be located in the San Agustin Basin in Catron County. The application was protested by many. In April of 2012, the State Engineer denied the application because it lacked specificity as to use and place of use. The Ranch appealed to the Seventh Judicial District Court in Catron County on the issue of whether the Ranch should be allowed to present evidence to the State Engineer in support of its application. The district court denied the Ranch's appeal in November 2012 on the basis that specificity regarding use and place of use is required in a groundwater application as a matter of law. In 2013, the Ranch filed in the Court of Appeals arguing that the district court erred in upholding the State Engineer's denial of application without an evidentiary hearing on the merits of the application. As of November of 2013, this case is still pending.

"Until now, 'fully appropriated' has been conceptualized with regard only to consumptive appropriations." Today, "we must recognize the possibility that a non-consumptive beneficial use piggy-backed onto a fully appropriated basin can, under appropriate circumstances, be a legitimate appropriation."

Carangelo v. ABCWUA

Updates From N. M. State Engineer Decisions—2012

In the Matter of the Application by the Albuquerque Bernalillo County Water Utility Authority for Permit to Appropriate, Store, and Divert the Public Surface Waters of the State of New Mexico, Hearing No. 11-007 (December 2012). In May of 2001, the City of Albuquerque filed a permit to appropriate surface-waters in New Mexico. It was returned to the Bernalillo County Water Utility Authority without publication. In May of 2012, the Water Rights Division filed a Motion for Summary Judgment stating that, as a matter of law, there are no unappropriated surface-waters available to satisfy the application. The State Engineer granted the motion in December of 2012. He found that the surface-waters of the Rio Grande stream system are fully appropriated and therefore, rejected the application based on NMSA 1978, § 72-5-7. The case is on

appeal in the Second Judicial District Court. The State Engineer filed a Motion to Dismiss for Lack of Property Venue and both parties filed a joint motion to stay proceedings. The court granted the order to stay proceedings until December 18, 2013, and no decision has been entered as yet. See Case No. D-202-CV-201300153.

Latest Update by Stephanie Tsosie, University of New Mexico School of Law, Class of 2015, (2013).

New Mexico Water Law Statutes

The following outlines the subject matter of Chapter 72, Water Law.

Chapter 72 of the New Mexico statutes articulates the water law of the state. The articles within the Chapter outline types of water uses, water sources, and parties and offices that may be a part of administering water rights. A basic description of each article is given below.

Article 1 outlines water rights in general. Subsections 1 through 4 detail definitions of water rights, sources of water, and the implementation of the Desert Lands Act. Subsections 5 through 8 outline individual uses of water. Subsections 9 and 10 provide for municipal water uses. Subsections 11 and 12 give specific provisions for Indian water rights settlements.

Article 2 details the duties and powers of the State Engineer.

Article 3 defines water districts and the position of water masters. Subsections detail the accountability and appeal procedure from the water master to the state engineer.

Article 4 provides for water surveys, investigations, and the adjudication of water rights.

Article 4A provides for water project financing.

Article 5 addresses appropriation and use of surface water.

Article 5A details groundwater storage and recovery.

Article 6 contains provisions for water use and leasing, including the application, approval, notice, hearings and appeals.

Article 7 outlines the process of appeals from the State Engineer to the District Court.

Articles 8 & 9 outline the offenses and penalties under and application of the Water Act of 1907.

Article 10 addresses community uses of water.

Article 11 concerns salt lakes.

Article 12 concerns underground waters.

Article 12A outlines procedures for mine dewatering.

Article 12B has two sections for the application and use of New Mexico waters outside the state.

Article 13 contains provisions for artesian wells.

Article 14 sets up the Interstate Stream Commission and provides for the protection of interstate waters.

Article 15 lists the notice, ratification, and approval of interstate compacts.

Articles 16 through 20 consist of flood control provisions for Albuquerque, Las Cruces, Southern Sandoval County, Eastern Sandoval County and other Flood Control Districts.

> "It was the evident design of the Legislature, by chapter 49, S. L. 1907, to have adjudicated and settled by judicial decree all water rights in the state, to have determined the amount of water to which each water user was entitled, so that the distribution of water could be facilitated, and the unappropriated water to be determined, in order that it might be utilized."
>
> *Snow v. Abalos*, 1914-NMSC-022, 18 N.M. 681, 140 P. 1044.

Adjudications*

2014 Status Bar

On May 21, 2014, three legislators filed suit with the NM Supreme Court asking that the Navajo Settlement for the NM San Juan river system be set aside because the legislature did not have an opportunity to approve it. The Court dismissed the case without comment on June 3, 2014.

Background

Adjudications are lawsuits that take place in state or federal court to resolve all claims to water use in the state of New Mexico, including those of Pueblos, tribes and the federal government. These cases are required by statute to create a formal inventory of water uses and to facilitate administration of New Mexico's surface and groundwater. The geographic scope of each case is generally described by a stream system and occasionally by a groundwater basin. By statute, the State is always the plaintiff. The mission is to formally identify and recognize all valid water rights in each area being adjudicated. For expeditious and effective case management, a court may allow the case to proceed by smaller geographic sections: for example, the Pecos adjudication has twelve sections and the Lower Rio Grande has five sections.

Currently, twelve adjudications are pending in New Mexico courts. The table to the right summarizes the active adjudications.

Northern New Mexico Adjudications

Stream System	Total Acres	Subfiles	Defendants
San Juan	37,829	9,000	11,400
Jemez (decreed)	2,033	1,011	1,095
Red River (decreed)	12,185	1,202	1,605
Zuni	980	950	1,000
Rio San Jose	undetermined	1,800	2,000
Rio Chama	34,868	3,659	4,636
Taos/Hondo	13,756	4,024	5,220
Santa Cruz/Truchas	7,214	3,446	5,133
Nambe/Pojoaque/Tesuque	2,724	3,159	5,284
Santa Fe	827	1,282	1,556
Northern NM Subtotals	112,435	29,803	39,241

Southern New Mexico Adjudications

LRG Section or Underground Basin	Total Acres	Subfiles	Defendants
Nutt Hockett	11,554	43	22
Rincon Valley	22,027	1,232	1,432
Northern Mesilla	20,360	5,954	7,585
Southern Mesilla	54,165	5,400	7,273
Outlying Areas	3,463	1,318	1,798
LRG Subtotals	111,569	13,947	18,110
Animas Underground	18,254	140	147
Southern NM Subtotals	129,923	14,087	18,257

Pecos Adjudication

Pecos Section	Total Acres	Subfiles	Defendants
Gallinas	8,164	1,674	1,998
Upper Pecos (Ground Water)	695	100	93
Upper Pecos(Surface Water)	undetermined	undetermined	2,000
Pecos Supplemental/Misc.	4,651	49	100
Hondo Basin	6,748	588	657
FSID	6,500	undetermined	480
Fort Sumner (Ground Water)	7,444	80	44
PVACD	128,274	1,900	2,522
River Pumpers	6,063	19	22
Carlsbad Underground	11,350	320	240
Carlsbad Irrigation District	26,913	1,106	1,328
Peñasco	undetermined	undetermined	5,000
Pecos Subtotals	206,816	5,840	14,484

ACTIVE GRAND TOTALS	446,605	49,768	72,289

Pending New Mexico Adjudications
Non-Indian Subfile Summary

Totals and Estimates as of October 2011
Courtesy of the New Mexico Office of the State Engineer

* This article focuses on the adjudications of non-Indians' water rights. For an in depth discussion of the adjudication of tribal/ Pueblo water rights see Chapter 5 American Indian Water Rights.

Further information is provided in the table on the next page, which indicates where each adjudication is pending, the judge assigned, and the original date of filing.

Adjudications are complex and lengthy, mainly due to large numbers and types of claimants, vast areas, and considerable individualized time required to investigate the claims involved. For example, it is estimated that

- the Lower Rio Grande adjudication, filed in 1986, has 18,000 non-Indian claimants, one federal irrigation district, 14,000 subfiles, and 111,365 irrigated acres;
- the *Aamodt* adjudication, filed in 1966 has 5,284 non-Indian claimants, four, Pueblos, one irrigation district, 3,159 subfiles, and 2,724 irrigated acres; and
- the Pecos River adjudication, filed in 1956, has 14,484 non-Indian claimants, one tribe, three federal and state irrigation or conservancy districts, 5,840 subfiles and 206,816 irrigated acres.
- In all twelve active adjudications, there are an estimated 72,300 non-Indian claimants, eighteen Tribes or Pueblos, 50,000 subfiles, and 448,000 irrigated acres.

Role of the Court, Attorney General and Office of the State Engineer

In New Mexico, adjudications require concerted effort on the part of the courts, the attorneys, and the Office of the State Engineer (OSE). Each adjudication is assigned a judge; adjudication judges may also serve as district court or appellate judges, and they may or may not be the designated water judge for a particular judicial district. Even if the geographic scope of an adjudication spans more than one judicial district, only one judge is assigned to the case. The judge can elect to have a special master appointed to carry out specific aspects of a case and/or to conduct the day-to-day operations of the case. New Mexico does not have a separate water court designated to hear water disputes.

The Attorney General conducts adjudications for the State through attorneys commissioned as Special Assistant Attorneys General. These attorneys are members of the OSE adjudication teams, work directly with OSE staff, and are generally officed in State Engineer facilities. They may also be contractors hired by the OSE.

The OSE assigns hydrographic staff to each Bureau; the staff investigates the history of water use, assembles technical information and prepares abstracts and maps for each water right claim. The technical staff works closely with the attorneys to develop a complete picture of each water claim.

Pending Adjudications

Stream System	Tribes/Pueblos Water Right Adjudication
San Juan	Navajo Nation, Jicarilla Apache Nation, Ute Mountain Ute Nation
Zuni	Zuni Pueblo, Navajo Nation
Jemez	Santa Ana Pueblo, Jemez Pueblo, Zia Pueblo
San Jose	Acoma Pueblo, Laguna Pueblo, Navajo Nation
Chama	Ohkay Owingeh Pueblo, Jicarilla Apache Nation
Taos/ Rio Hondo	Taos Pueblo
Santa Cruz/Truchas	Ohkay Owingeh, Santa Clara Pueblo
Nambé/Pojoaque/ Tesuque	Nambé Pueblo, Pojoaque Pueblo, San Ildefonso Pueblo, Tesuque Pueblo
Pecos	Mescalero Apache Nation

The attorneys and technical staffs are assigned to adjudication teams. The teams are organized into three groups: the Northern New Mexico, the Pecos, and the Southern New Mexico Bureaus. Members of each team may work on more than one adjudication; there are presently twelve active adjudications.

Adjudication Process

The New Mexico adjudication process consists of seven general phases: 1) the filing of the complaint, 2) the hydrographic survey, 3) the subfile phase, 4) the stream-wide issues phase, 5) the errors and omissions phase, 6) the *inter se* phase, and 7) the entry of the final decree. The complaint may be filed by any interested party and initiates the adjudication. If the State did not file the complaint, the court will realign the parties so that the State is the plaintiff.

Hydrographic Survey: The hydrographic survey is required under the state Water Code, involves collecting information about each water right, and may be conducted before or after the complaint is filed. The survey is performed by the OSE technical staff. It identifies who should be joined as claimants to the case and provides the information necessary for making offers of judgment to claimants. The information used to produce the hydrographic survey report comes from several sources. These include aerial and satellite photos from multiple years, which are analyzed to determine beneficial use. Historic records and existing water rights files are consulted and field investigations by OSE staff verify historic and current water uses and practices.

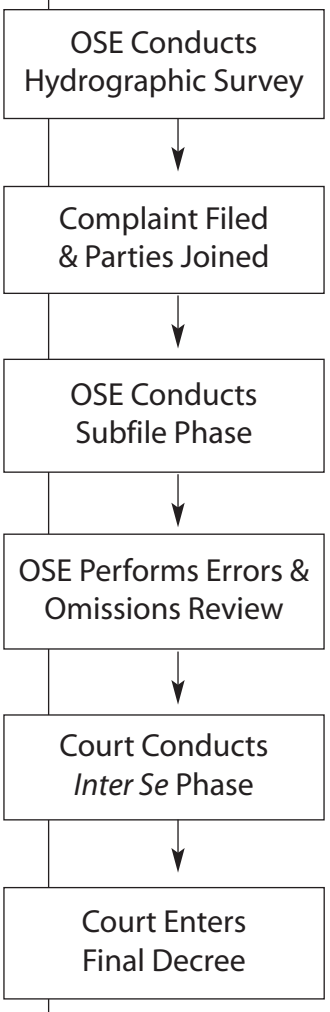
At the conclusion of the investigation, the State Engineer produces a hydrographic survey report containing water right abstracts, maps, and general information used in describing the rights. The completed hydrographic survey report is filed with the adjudication court.

Subfile Phase: During the subfile phase, the state's attorneys present findings about the elements of each water right to each claimant. The elements are listed in the state's Water Code and include quantity, priority, place of use, purpose of use, point of diversion, and any other matter the court deems necessary. A subfile may involve one individual, multiple claimants, one city, or one tribe. It may include all or some of the water rights of a claimant, depending on how the court and parties decide to manage the case.

Historic records and existing water rights files are consulted and field investigations by OSE staff verify historic and current water uses and practices.

The subfile phase involves joining claimants, conducting meetings in the field, presenting an offer to each claimant, and negotiating and participating in mediation as necessary. If agreement is reached, a subfile order is entered resolving the claim between the state and the claimant; if not, the parties go to trial. The State Engineer adjudication teams make every effort to resolve water right claims before requesting a trial. A subfile order may contain all of the elements of a water right or the court may decide, for case management purposes, to reserve certain elements until other rulings are made. The subfile phase can be the most time consuming phase of an adjudication.

Once the state and claimant have agreed, the proposed order is sent to the court. If the court agrees, the order is signed and entered into the record. Entry of an adjudicating order is a major step for each claimant, but the whole adjudication remains open and the water rights are not finalized until the court conducts the *inter se* phase and enters the final decree into the record.



New Mexico Adjudication Process

Stream System Issues Phase: Stream system issues are matters that affect the stream system as a whole, or alternatively, a large group of claimants. These issues may be addressed at any stage of the adjudication depending on the judge's preference, or when an issue arises. They can involve matters such as the priority date for the parciantes on an acequia, or the duty of water, that is, the amount of water right delivered to each acre for an entire stream system.

Errors and Omissions Phase: The errors and omissions phase is conducted after all subfile orders are entered. It is designed to clean up the adjudicated information prior to entering a final decree.

Inter Se Phase: Inter se is Latin for "among themselves" and it is a time in the case when any claimant may challenge the water rights of any other claimant. No claimant, however, may revisit his/her own subfile. Following the entry of orders for each subfile in an area, the court conducts the *inter se* phase of an adjudication to resolve issues arising between water right owners. These challenges may go to mediation or receive a hearing. By resolving the challenges of any member of a community, the water rights are made final as against every other right as well as the State.

If necessary, a court can conduct an expedited *inter se* before all orders have been entered. For example, objections to the water rights of the Taos Pueblo to the Rio Taos stream system are being resolved before all the non-Indian rights have been determined. In order to complete this part of the adjudication and to meet deadlines in the "Taos Pueblo Indian Water Rights Settlement Act of 2010, the Court is conducting an expedited *inter se* to determine whether to enter a partial final decree for the Pueblo.

Stream system issues are matters that affect the stream system as a whole, or alternatively, a large group of claimants.

Partial Final Decrees and Final Decrees: Once the *inter se* phase is complete, a court enters a final decree or a partial final decree. The final decree describes the rights adjudicated, and once entered, ends the case or a significant segment of the case. If an adjudication is divided into segments by geographic region or type of right, these segments can be conducted in full or in part, sequentially or concurrently, depending on the case management choices of the court and the parties. Thus a case may have several partial final decrees, which together resolve all of the water rights in a stream system.

Expediting the Process

Water rights adjudications throughout the West take decades to complete. Over the last ten years, the New Mexico courts, Office of the State Engineer, the and the legislature have explored ways to expedite these proceedings. Studies have been conducted, rules developed, and programs implemented to further this cause.

New Mexico Supreme Court Rules: In 2002, the New Mexico Supreme Court established an *ad hoc* committee to develop and examine rules of procedure particular to water litigation and stream adjudications in New Mexico. The *ad hoc* committee researched several issues including: *ex parte* contacts; prohibitions on changing rules of procedures in pending cases; the legal nature of water rights; the inherent procedural difficulties in adjudications; the accuracy and updating of records; and standardizing procedures for all adjudications. Recommendations were submitted to the Supreme Court of New Mexico.

In 2007, the Supreme Court issued provisional procedural rules for adjudications. These rules addressed the issues of service and joinder of water rights claimants; stream system issues and expedited *inter se* proceedings; an annual joint working session; *ex parte* contacts between the State and the court on procedurals matters; general problems of administration; and excusal or recusal of a water judge. In 2011, the New Mexico Supreme Court made the rules permanent.

New Mexico Supreme Court Rules

1-071.1, Statutory stream system adjudication suits; service and joinder of water rights claimants; responses.

1-071.2, Statutory stream system adjudication suits; stream system issue and expedited *inter se* proceedings.

1-071.3, Statutory stream system adjudication suits; annual joint working session.

1-071.4, Statutory stream system adjudication suits; *ex parte* contacts; general problems of administration.

1-071.5, Statutory stream system adjudication suits; excusal or recusal of a water judge.

In 2012, the district court in the Animas Underground Basin adjudication, *State of New Mexico v. Rosette, Inc.*, applied the concept of expedited *inter se* addressed in NMSC 1-071.2(B) to all individual subfiles. In the traditional adjudication model, the *inter se* phase occurs after entry of subfile orders for all individual water rights. As a consequence, individual rights may not be fully resolved as between the State, claimants, and the community for decades.

In this case, the State mails a proposed subfile judgment to each water right claimant. The State and the claimant engage in negotiation over differences, if any, in the description of the right for a limited period. When that time has expired, the State files the proposed judgment with the Court. All other claimants receive notice of the filing and the deadline for objections through publication of the Monthly Adjudication Report on the court's website. Once the court resolves all objections, if any, it enters the Final Judgment for the right. In this way, adjudicated water rights become final after a period of months rather than years.

Joe M Stell Water Ombudsman Program: The Ombudsman Program provides information to *pro se* claimants (water rights claimants not represented by attorneys) so that they may understand and participate more fully in the adjudication process. The Ombudsman is able to help self-represented claimants understand the options available in responding to pleadings and offers from the State. The Program offers toll-free help lines, educational publications, and public meetings. The Program also reaches out to individuals who have not responded to the State's mailings, and those who object to offers of judgment on grounds unrelated to substantive issues. The Ombudsman does not provide legal advice.

Water and Natural Resources Committee: The Legislature's Interim Water and Natural Resources Committee has put forth considerable effort and attention to expediting adjudications. In 2007, the Committee created a subcommittee on adjudication reform, chaired by Senator Mary Kay Papen. This subcommittee held meetings to discuss how adjudications can become more efficient and effective. A working group of representatives of the Administrative Office of the Courts (AOC) and the OSE compared the process in several other states and worked on developing ideas for improving the process. The goal was to make joint recommendations to the legislature. This effort was focused on future adjudications—primarily looking at how to approach the Middle Rio Grande—and not on existing adjudications.

In October of 2008, the AOC and the OSE submitted separate reports to the Committee. The AOC offered several suggestions to streamline future adjudications. Among other recommendations, they suggested replacing the hydrographic survey approach with a "claims-based" system for identifying and evaluating water rights. Other key AOC recommendations included: changing the OSE's role from that of a party to that of a neutral expert; limiting the amount of time for raising an objection to the state's offer of judgment and requiring other claimants to raise any objections during that same time

The Ombudsman Program provides information to pro se claimants (water rights claimants not represented by attorneys) so that they may understand and participate more fully in the adjudication process.

period; changing the method of notifying claimants of adjudication developments; and adjudicating claims on a rolling basis. The AOC recommended that before legislative action is taken, other input and suggestions for improvement should be obtained from stakeholders and water experts.

The OSE's report stated that the working group had not sufficiently analyzed their research to the point of being able to recommend comprehensive legislative or judicial changes. The OSE promoted licensing of water uses to obtain certainty prior to adjudication. It raised concerns about changing laws to accommodate a Middle Rio Grande adjudication without a full assessment of the implications of cost, time, and the legal process issues; further, they were not convinced of the urgency of the adjudication of the Middle Rio Grande. Instead, the OSE felt that administrative proceedings—such as licensing—could address the practical needs of Middle Rio Grande water rights administration without precluding adjudication reform. This subcommittee is now inactive.

In the 2009 session, the Legislature adopted Senate Joint Memorial 3. It required the Institute of Public Law (IPL) at UNM to conduct public meetings around the state and to obtain public comment on the water rights adjudication process. The IPL report concluded that: 1) most participants support existing law and worry about the consequences of changing it; 2) most participants want fairness, accuracy, and certainty over speed in adjudications; 3) tweaking the current system will accelerate adjudications; 4) where possible, a greater decision-making role for local authorities will help; and 5) a neutral state-funded entity to provide objective data, education, and assistance is strongly desired.

Adjudications, by their very nature, are very simple in design and very complex in execution. The parties, the courts, and the legislature strive, and will continue to strive, to make them more expeditious without sacrificing the basic constitutional rights of claimants to notice and due process.

By Brigette Buynak, Esq. (2008)
Latest Update by Darcy Bushnell, Esq. (2014)

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1-071.4, Statutory stream system adjudication suits; *ex parte* contacts; general problems of administration.

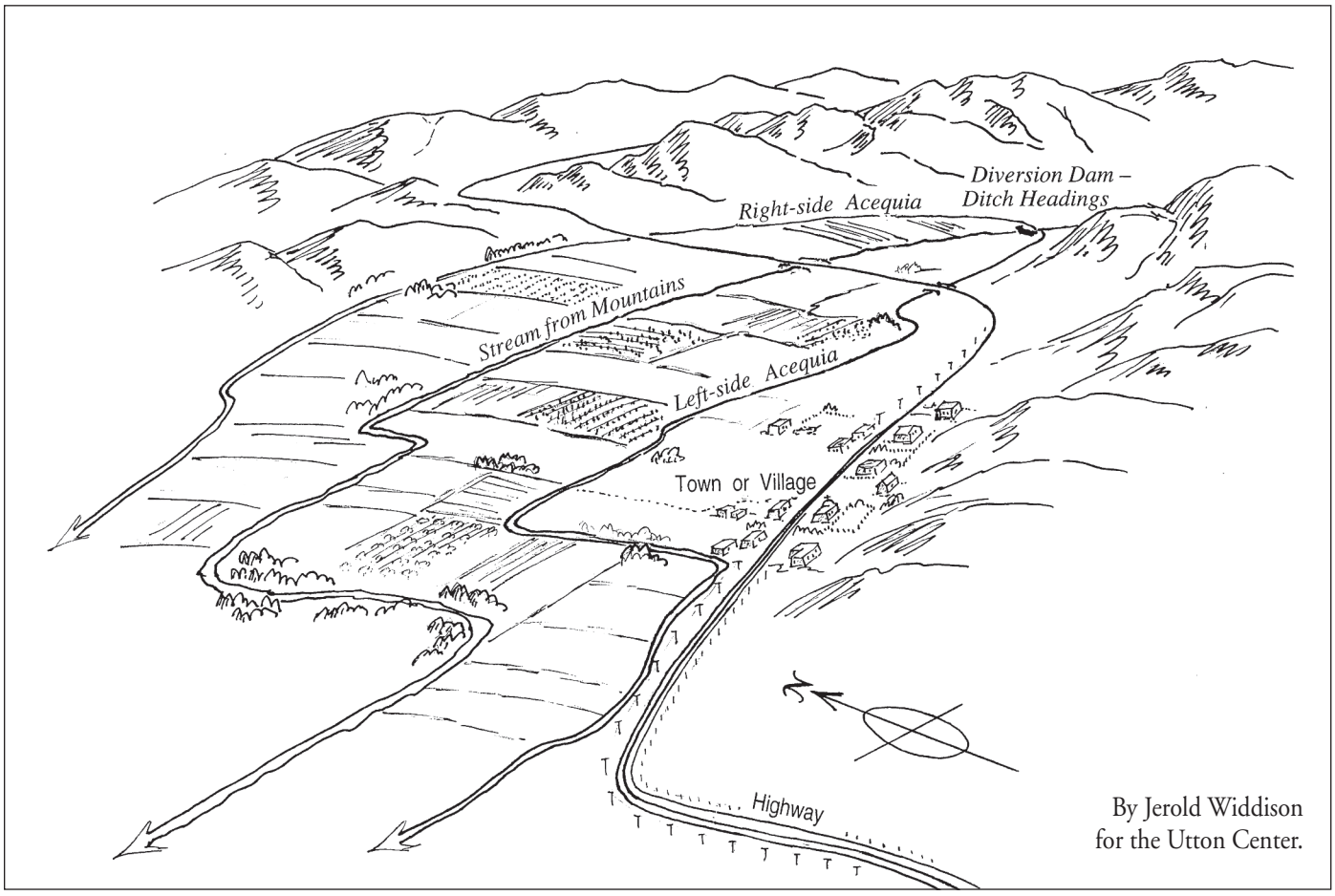
1-071.5, Statutory stream system adjudication suits; excusal or recusal of a water judge.

Acequias

Acequias are community irrigation systems in the villages and pueblos of New Mexico. They have deep roots in two ancient traditions—Pueblo Indian and Spanish. The Pueblos collected and shared water for centuries before the arrival of Spanish colonists in 1598. The Spanish settlers brought technical knowledge and institutional frameworks for governing irrigation systems, which originated in the Moors' seven-century occupation of Spain. Both traditions remain important to an understanding of New Mexico's acequia heritage and the continuing relevance of these "water democracies." Today, these traditions must meld with state law as the legislature has provided that acequias are "political subdivisions" or local governmental entities with all the attendant rights and responsibilities.

"Thousands of families continue to derive all or part of their subsistence or livelihood from their ranchitos, small-scale farms and ranches. More importantly, acequias endure in large part because of attachment to place, the miracles made possible with water and the cultural longing to continue ancestral practices and pass them on to future generations."

Paula Garcia,
Executive Director,
New Mexico Acequia Association



By Jerold Widdison
for the Utton Center.

The ditches of each acequia system bring water from a spring, river, or mountain stream to a community. The acequias include the diversion dams, headgates, flumes, and other features needed to transport water for irrigating fields, gardens, croplands, and pastures. The acequias, however, are more than water-distribution facilities. As local organizations, they are important for the social and economic cohesion they provide to their communities. The acequias are historic, integral parts of the culture and heritage of New Mexico. And, as it turns out, they play a role in addressing current issues facing New Mexicans: responding to the demand for supplies of fresh local food, and meeting the need for more efficient water use as development and climate pressures increase.

History

In 1846, General Stephen Watts Kearny claimed New Mexico as a territory of the United States. The Spanish and Pueblo inhabitants, until then Mexican citizens, had practiced acequia-based irrigation in the province for more than two centuries. The Kearny Code decreed that the "laws heretofore in force concerning water courses…shall continue in force." The Treaty of Guadalupe Hidalgo of 1848 recognized the end of the war between the United States and Mexico and the rights and property of the former Mexican citizens. At Article VIII, the Treaty pledged that "property of every kind" would be "inviolably respected" by the United States.

During the "Territorial" period from 1848 until statehood in 1912, however, New Mexico experienced a quiet revolution in the rules governing the use of its water. The practices the communities had worked out were grounded in knowledge of their local areas and their traditions. These practices obliged appropriators to monitor each other's behavior and to sanction those who took more than their share, or who failed in their responsibilities to the collective that held their limited rights to the resource that was the "lifeblood of the community." The Pueblo and Hispano acequia communities exerted local control over water and developed customs among themselves for equitable allocation. But increasingly, they ceased to be the only appropriators of surface-water.

As local organizations, they are important for the social and economic cohesion they provide to their communities.

"Anglo" newcomers in the last half of the 19th century challenged these arrangements, viewing the local peoples' ecological adaptations to the arid land as primitive. Instead, they embodied an ethic based on America's "manifest destiny." The newcomers were fueled by the belief that they could and should bend nature to human will. They promoted ambitious ideas about what irrigation agriculture could accomplish in New Mexico's Rio Grande and Pecos river valleys. Furthermore, after 1879 they arrived in droves by railroad so that in the next 30 years the Territory's population jumped more than 170 percent.

To these entrepreneurs, local control of the Territory's water by small-scale irrigators meant waste and inefficiency. But the acequia system was too entrenched for the territorial legislature to replace it directly. Instead, legislators created new mechanism—water companies, irrigation districts, and later conservancy districts—through which control of major tracts of land and the water rights appurtenant to them moved from community control into private hands. The legislature centralized authority to allocate such rights in the office of the Territorial (now State) Engineer. Passage of the Reclamation Act by Congress in 1902, introduced a federal role in water development and aided these trends.

As inadequate as the United States' government has been in respecting the property guarantees of the Treaty of

Guadalupe Hidalgo for both Hispanos and Pueblos, it did recognize early on the importance of the acequias. In 1851, the legislative assembly acknowledged the legitimacy of customary and traditional acequia rules in the Territory's first water laws. Successive territorial assemblies both expanded acequia authorities and limited their autonomy. By the end of the 19th century, acequias had been designated quasi-public corporate entities. But their real power rested in their control of access to water. They could decide whether water was "unappropriated" and available to be put to new use. They assigned preference to different uses in times of shortage. They gave the communities access to water not as a property right but in exchange for members' acceptance of the rights and responsibilities of participating in ditch governance.

Soon enough, however, the enactment of New Mexico's water code in 1907, together with a series of decisions over the next decade in state courts, resulted in the loss of some of these community acequia powers. In a 1914 decision, *Snow v. Abalos*, which affirmed the acequias' corporate powers, the New Mexico Supreme Court said that "[w]hile a ditch through which water is carried is owned by the constructors as tenants in common, water rights acquired by the parties are not attached to the ditch but are appurtenant to the land to be irrigated." Water rights were thus understood to be owned solely by individual *parciantes* (acequia members), an understanding that existed until the state enacted an important change in the law in 1987.

UNM Emeritus Professor G. Emlen Hall summarized the post-1914 state of affairs as follows:

> The power to decide who would have access to a common source of water was…sent up to a state bureaucrat, the New Mexico State Engineer.… [T]he power to rank uses was sent down to individual irrigators. So long as the use was "beneficial" (and almost all uses were), then the choice [was better left to individuals]. Finally, water rights became property rights—the expression of individual ownership—and not the corporate political will of a community ditch association.

From an acequia perspective, then, much of the recent legislative history of water rights in New Mexico chronicles a struggle to regain a measure of the community control of water that was lost in the early years of the 20th century.

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Statutes Recognizing and Regulating the Acequias

Approximately a century ago, almost every aspect of the acequia system came under state law. Most of the laws confirmed to some extent, at least, the traditional structure and gave legal status to the acequia system within Anglo-style law-making. Some laws may be said to have reconciled the acequia system with other provisions and principles of law that might have conflicted with it. Other laws have wrestled with emerging problems that affect or impinge upon the acequia systems, mostly having to do with water rights.

The main statutes about the acequia system are found in the 1907 "Acequia Act" in Chapters 73, Articles 2 and 3 of the water code. The designation of acequias as "political subdivisions of the state" restricted their autonomy. The Act ensured that local practice conformed to uniform standards in a number of matters. For example, it defined membership criteria and rules for election and duties of each acequia's *comisión* (commission) and *mayordomo* (ditch master). NMSA 1978, §§ 73-2-28; 73-2-12 and 73-2-13.

The Acequia Act also provides that the rights of a member may be suspended if the member fails to provide labor or payment of assessments to maintain the ditch. Further, the *mayordomo* can collect a civil penalty in magistrate court from *parciantes* who fail to provide either labor or payment. Similarly, members are prohibited from damaging the irrigation works or taking water contrary to order of the mayordomo or commissioners. Such offenses are criminal misdemeanors that may be prosecuted in magistrate court, and acequias may also seek injunctive relief.

Reconciliation with Other Laws

Prior Appropriation: "Prior appropriation" forms the foundation of New Mexico's water law. Acequias have long realized that the blunt application of the prior appropriation doctrine does not make for good neighbors. Acequias typically developed sharing agreements in times of water shortage. Such agreements have found legal backing, resting on both statutory and constitutional authority. Local or community rules and customs are protected under the law. In addition, if the custom of an acequia predates the Treaty of Guadalupe Hidalgo, the custom falls within the protection of the Treaty. One of the adjudication statutes states that adjudication decrees shall also include "such other conditions as may be necessary to define the right and its priority" so that a court may consider custom in determining water rights. NMSA 1978, § 72-9-2 and § 72-4-19. For more information, please see the chapters "Adjudications" and "Basic Water Law Concepts" in this edition of *Water Matters!*.

Water Right Transfers: Irrigation water rights are attached to the land on which water is used, but they may be severed from the land and transferred to another tract. The loss of acequia water rights through market transfers has increased as development pressure threatens to take land out of agricultural production. When water is transferred out of an acequia system, the system may no longer function. It takes water to move water and if the amount of water to be transported is reduced sufficiently, there will not be enough in the acequia to reach the land at the end of the ditch. NMSA 1978, § 72-5-23.

To address this concern, the 2003 legislature enacted statutes to protect acequias from water right transfers if such transfers will harm the acequia or its members. Under these statutes, an acequia may incorporate language into its bylaws that gives it decision-making authority over proposed transfers of acequia water rights. The State Engineer cannot approve a transfer application into or out of the acequia unless the he receives the acequia commission's written approval of the action. The commission must make a decision regarding the transfer within 120 days of a request for approval. An applicant, whose transfer has been blocked, can appeal to the district court. If an acequia's bylaws do not address proposed transfers, the written approval is not required, and the State Engineer considers the application just as any other transfer request. NMSA 1978, §72-5-24.1; §73-2-21(E) and § 73-3-4.1.

As political subdivisions of the state, acequias also have standing to protest water right transfer applications, which may have an adverse effect on their functioning. The statute provides that an acequia can protest a transfer application by one of its *parciantes* because the transfer could affect the hydraulic viability—or the corporate integrity—of the acequia. It also allows an acequia to protest an application elsewhere in the state, which, if granted, might undermine the stability of the acequia institution. NMSA 1978, § 72-5-5.

The statute specifically prohibits municipal condemnation of water sources used by, water stored for use by, or water rights owned or served by a community ditch, irrigation district, conservancy district, or other political subdivision of the state.

The statutes set for some of the bases for objecting to a transfer. Acequias and acequia associations can protest a water transfer application if they believe the transfer will be detrimental to existing water rights, are contrary to conservation of water, and/or will be detrimental to the public welfare. Thus far, however, no hearing or ruling by the State Engineer has fully determined how effectively this statute can protect acequia water rights, because "public welfare" is undefined in the statute. NMSA 1978, § 72-5-23; § 73-2-21(E); and § 73-3-4.1.

Water Rights and Water Banks: In 1987, the state legislature recognized acequias' power to acquire and own water rights. They can use and transfer the water rights, and protect them from loss through nonuse. In addition, the legislature passed a 2003 statute that allows acequias to create "water banks" to allow members to temporarily reallocate their water to others on the acequia without having to apply for an OSE transfer permit or put their rights at risk of loss through non-use. To a limited degree then, this provision shifts the concept of *parciante* ownership of water rights back to the older concept of communal ownership. NMSA 1978, § 73-2-22.1.

Condemnation: In 2009, the legislature afforded acequias another protection of their water rights when it prohibited municipalities from condemning acequia water rights in satisfying their 40-year plans. The statute specifically prohibits municipal condemnation of water sources used by, water stored for use by, or water rights owned or served by a community ditch, irrigation district, conservancy district, or other political subdivision of the state. NMSA 1978, § 3-27-2.

Challenges and Concerns

*Water Rights, Adjudications, and Transfers***:** Notwithstanding the statutory changes just described, the two dominant concerns of the acequias at present are 1) securing their water rights through satisfactory adjudication settlements and 2) maintaining control over water rights transfers out of their systems. As it happens, recently proposed water rights settlements in the *Aamodt* and *Abeyta* cases utilize creative water-sharing arrangements as alternatives to the exercise of senior aboriginal water rights. These may provide good examples for the future.

Acequias and acequia associations can protest a water transfer application if they believe the transfer will be detrimental to existing water rights, are contrary to conservation of water, and/or will be detrimental to the public welfare.

Rio Nambé, Rio Pojoaque, and Rio Tesuque: The *Aamodt* settlement agreement for the Rio Pojoaque watershed resolves the water rights of the Pueblos of Nambé, Pojoaque, San Ildefonso, and Tesuque). The agreement protects existing acequia rights from priority enforcement by the Pueblos' senior future uses. The Pueblos agreed to limit any priority enforcement during times of shortage to their existing uses. The U.S. Congress passed the *Aamodt* Litigation Settlement Act in 2010. This legislation approved the settlement and appropriated funds for a regional water system in the Pojoaque Valley. The water system is designed to help protect and restore the aquifer, which in turn should enhance surface flows in the streams in the Valley. Enhanced surface flows will protect acequia access to water. The court is conducting the *inter se* phase of the Pueblos' rights. The subfile adjudication of non-Pueblo surface rights is nearly complete and the parties are working on domestic wells. Once this phase is completed, the court will conduct the *inter se* phase of the non-Pueblos' rights. For more information, please see the chapters "Adjudications", "American Indian Water Rights" and "Nambé, Pojoaque, San Ildefonso, and Tesuque Settlement" in this edition of *Water Matters!*.

Rio Taos and Rio Hondo Adjudication: The *Abeyta* settlement agreement also turns on Pueblo forbearance, though in a different way. Taos Pueblo and the non-Indian acequias in the Rio Pueblo de Taos and Rio Hondo river basins initiated settlement discussions in 1989. The 2006 settlement agreement is predicated on extensive technical research that provided hydrologic information upon which practical water sharing is to be based. Taos Pueblo will exercise its aboriginal water rights over time, but will offset its uses as they increase—acre by acre—through mechanisms such as acquisition and retirement of non-Pueblo uses. Thereby, the agreement protects the 55 acequias in the Taos Valley consistent with long-standing customs of water-sharing among the parties.

Middle Rio Grande: As the time draws nearer for the courts to determine water rights in the Middle Rio Grande Valley, some of the 72 acequias that were subsumed by the Middle Rio Grande Conservancy District (MRGCD) upon its creation in 1925 are seeking to learn what their rights might be, independent of the MRGCD. While a bill in the 2009 legislature that would have limited MRGCD authority over acequias within its boundaries did not pass, the question of whether acequias have separate legal standing has not been foreclosed. The attorney general's office has said that the answer hinges upon satisfaction of a number of unanswered questions; the most important of which is whether the acequias were properly compensated after notice and hearing when the MRGCD was formed.

> The Court of Appeals held that because acequia commissioners are intimately familiar with the complex needs of their acequia and its members, the deferential standard of review provided in the statute helps assure that they retain the power to decide whether changes in an acequia system will harm the operation of the acequia and those who might depend on it for their livelihood.

Water Right Transfer Challenges: Despite the clarity of the 2003 statutes, the power of acequia commissions over the water rights they govern has been challenged. The first

Q: Where are the Acequias? How many are there?

A: They're widespread, located in the valleys of most New Mexico rivers and flowing creeks. There are about 700 of them.

Good information about acequias is scarce. NMSU professor Neal Ackerly gathered up facts and figures over a period of years and found at least a bit of data on 1,927 acequia systems that once operated or that were still operating. In his 1996 summary report, Professor Ackerly stated that more acequias existed in past years, but by about 1987 the number in existence had dwindled to 721.

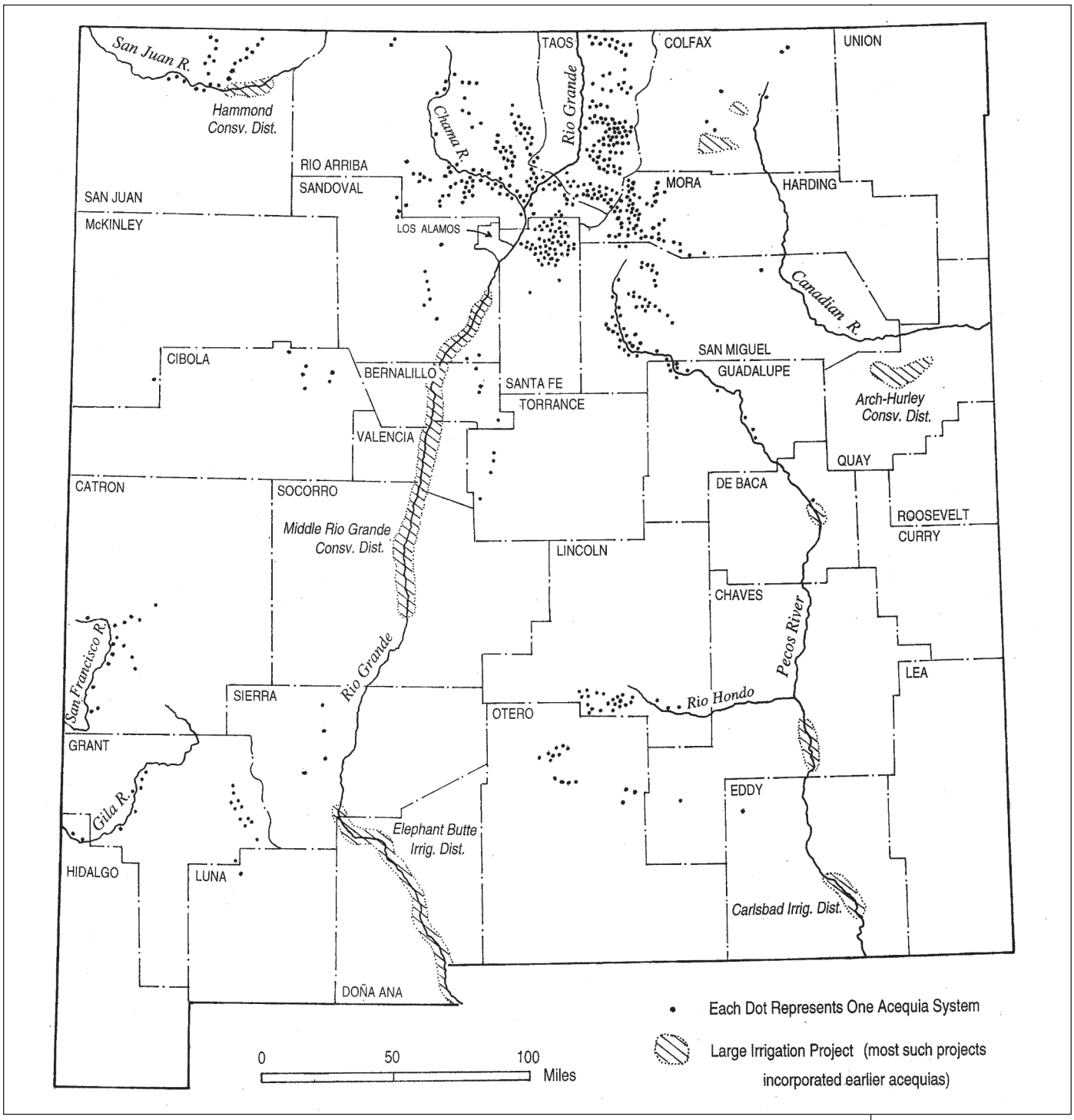
Fluctuations in the number of acequias reflect the settlement history of the state, including current trends of urbanization and reduced small-farm activity and farm population. The number of acequia systems increased slowly during the 1700s and early 1800s. Then it appears that the numbers increased rapidly in the late 1800s and early 1900s, followed by a slow decline throughout the last half of the twentieth century.

Government-sponsored irrigation projects also reduced the numbers of acequias. The MRGCD and the EBID, for example, absorbed and replaced the ditches of numerous acequia systems, also ending those systems as organizations.

Other acequias vanished as rural villages were abandoned and as traditional ways of life diminished.

Acequias have always been most numerous along the upper Rio Grande and its many small tributaries. Ackerly listed 172 systems in Rio Arriba County and 125 in Taos County. But acequias are also found in 14 other river basins, utilizing 130 streams and a number of springs.

Most acequia systems were established by early-day Hispanic settlers, but some, such as those in the Mimbres Valley, involved quite a few Anglo settlers early in the 1900s. In such places, just as in northern New Mexico, the acequia system was found to be a useful agricultural and community-building concept.



New Mexico Acequias

By Jerold Widdison for the Utton Center.

test of the statute was presented in *Pena Blanca Partnership v. San Jose de Hernandez Community Ditch,* which asked whether a district court's deferential standard of review of an acequia commission's decision violated the New Mexico constitution. The Court of Appeals held that because acequia commissioners are intimately familiar with the complex needs of their acequia and its members, the deferential standard of review provided in the statute helps assure that they retain the power to decide whether changes in an acequia system will harm the operation of the acequia and those who might depend on it for their livelihood.

The case involved appeals to the district court from decisions of two different acequias. In one case, the commissioners of the San José de Hernandez Community Ditch denied an application from Peña Blanca Partnership to transfer rights to a subdivision that were once appurtenant to agricultural land served by the acequia. In the other case, commissioners of the Acequia del Gavilán denied Richard Cook's application to transfer water rights once appurtenant to 10 acres served by the acequia, to a pond in order to offset evaporative losses of the pond.

The Court of Appeals determined that in each case, the acequia commissioners' decisions did not violate the Constitution's article XVI, § 5, which provides a *de novo* appeal to the district court from a decision on matters of water rights made by an administrative body "unless otherwise provided by law," nor violated the equal protection clause of article II, § 18. On the first issue, the court reasoned that the legislature provided a procedure for appealing commissioners' decisions to district court, and therefore, water rights owners were not entitled a *de novo* appeal.

The second challenge asserted that the standard of review for the district court, as set out in the statute—whether "the commissioners acted fraudulently, arbitrarily or capriciously" in denying a transfer—violates equal protection principles because other determinations concerning water rights are afforded a *de novo* standard of review. That argument also failed when the court applied a rational basis review of the statute and determined that there is no separate constitutional right to a particular standard of review. Again, because acequia commissioners are intimately familiar with the complex needs of their acequia and its members, the deferential standard of review provided in the statute helps assure that they retain the power to decide whether changes in the system will harm their acequia system.

If an irrigation ditch has been in use for five years, it is "conclusively presumed" that the landowner has granted an easement for it.

Other Acequia Concerns

Tort/Contract Immunity: Acequias and their officers enjoy tort immunity. As political subdivisions of the State, acequias fall within the protection of New Mexico statutes, which provide immunity for governmental entities. Moreover, the Tort Claims Act expressly provides tort immunity for acequia members acting within the course of their duties. In 2006, the legislature amended the law to protect officers, volunteers, and employees of community ditches or acequias from tort claims while acting within the scope of their duties. These individuals may request insurance and self-insurance coverage from the Risk Management Division of the New Mexico General Services Department. NMSA 1978, § 37-1-23; § 41-4-13.

Easements: Another matter has to do with easements on lands over which ditches lie. If an irrigation ditch has been in use for five years, it is "conclusively presumed" that the landowner has granted an easement for it. In 2005, the legislature amended to provide for prosecution and penalties for interference with such an easement. It is unlawful to interfere with an easement or to prevent access to the ditch, and interference is punishable as a misdemeanor. In addition, the mayordomo or acequia commissioners may file a civil complaint. NMSA 1978, § 73-2-5.

Acequia Commission: In 1987, the Governor created the New Mexico Acequia Commission. This Commission advises the Governor and the New Mexico Interstate Stream Commission (ISC), as well as the U.S. Army Corps of Engineers. The Commission considers issues involving rehabilitation of acequia infrastructure and state and federal funding and acts as a liaison between local acequia organizations and state and federal governments. In 1993, the

legislature established the Acequia Commission. It is attached to the Department of Finance and Administration. NMSA 1978, § 73-2-65.

Liaison at the Office of the State Engineer: Within the Office of the State Engineer (OSE) there is an Acequia Liaison who assists acequias and *parciantes* with their water rights in adjudications. In recent years, the Liaison has worked in the Rio Gallinas and Rio Chama basins, and the Mimbres basin. In the Mimbres basin, he is working with a community counterpart whose focus is the broader water community, including municipalities and other entities. The Liaison has also worked extensively in the Taos and Santa Cruz adjudications with lesser involvement in the Jemez, *Aamodt*, and Red River adjudications. The Acequia Liaison may assist acequias with water allocation issues and governance questions in addition to adjudication issues. The Liaison works with the ISC, the Water Resources Allocation Program, and the New Mexico Acequia Commission, as well as with the OSE's Native American Liaison on issues between acequias and Pueblos.

Acequia [Adjudication] Fund: In 1998, the legislature created the Acequia and Community Ditch Fund, which provides funding to community ditches and acequias for legal representation and expert assistance in adjudications. NMSA 1978, art. 72-2A.

Acequia Rehabilitation Programs: Acequias may be provided with operational and maintenance assistance by certain state and federal funding programs. Starting in 1961, the U.S. Department of Agriculture has provided technical and financial assistance to acequias for rehabilitation projects. As administrations change over the years, funding cuts have ensued, leaving the OSE as the primary source grants. Technical assistance involves planning, design, engineering and supervision of construction projects.

The Acequia Project Fund was created in 2004, but endowed for the first time in 2007 with a $100,000 private donation from the Healy Foundation. The Foundation donated an additional $100,000 in 2009. Grants from this fund provide financial assistance for acequia projects. Policies for determining funding were developed in 2009, including a provision that grants cannot exceed $20,000 and projects must be completed in a two-year time frame. NMSA 1978, § 72-4A-9.1.

Within the Office of the State Engineer there is an Acequia Liaison who assists acequias and parciantes with their water rights in adjudications.

Irrigation Works Construction Fund Loans: The costs that an acequia needs to put forward for a construction or rehabilitation project may be covered by a loan from the ISC. The loans are funded from the Irrigation Works Construction Fund (IWCF). This funding is provided by the legislature on an annual basis. NMSA 1978, § 72-14-23.

U.S. Army Corps of Engineers Program: A major source of funding for acequia projects is the federal Water Resources Development Act of 1986. Because of the acequias' cultural and historic values, the U.S. Congress authorized the Secretary of the Army to ensure funding for diversion structures at an estimated $40 million. These federal monies are matched at the state and local levels; the IWCF is a source of such non-federal cost shares.

Conclusion

Acequia members have historically fought to protect their rights. The voices of many acequia members have long been heard in the halls of the legislature. The New Mexico Acequia Association (NMAA) was formed in the 1990s. It is governed by the Congreso de las Acequias, a federation of regional associations of acequias. According to the NMAA, over 500 acequias are represented by the regional delegations. The NMAA has actively mobilized to define and press for passage of much of the legislation that protects the acequias.

Acequia issues should not be framed as preserving tradition versus meeting modern demands. Acequias benefit and play an important role in current developments of local foodsheds and, with the resurgence in popularity of organic food, acequias provide economic opportunity for members of rural communities. Further, in an arid state where every drop of water is studied and tracked, it has been shown that acequias provide recharge to our groundwater systems as water seeps into the earth beneath the flow. Following intensive studies of acequias in northern New Mexico, Sam Fernald when Assistant Professor in Watershed Management at New Mexico State University concluded: "Acequia hydrology plays an important role in contributing to an ecologically healthy, agriculturally productive, and community-sustaining floodplain agroecosystem."

By Brigette Buynak, Esq. and Jerold Widdison (2007)

Latest Update by Darcy Bushnell (2013)

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Hilario Rubio, former Acequias Liaison, N.M. Office of the State Engineer

Ricard Trujillo, Acequias Liaison, N.M. Office of the State Engineer

American Indian Water Rights

> "Native-American water rights in the region are being slowly determined through negotiation and litigation. This process must be continued and accelerated in order to provide security and certainty to Indian and non-Indian users alike."
>
> Albert E. Utton,
> *Natural Resources Journal,*
> Vol. 34, Fall 1994

Overview

Pueblos and tribal reservations are located within most of the larger stream systems in New Mexico. Each has claims to rights to use the water in its stream. In New Mexico, Indian rights are significant because of their early priority dates, because of the large amounts of water rights claimed, or both. In some instances, such claims have the potential to displace a significant number of junior water rights.

Adjudications involve all water rights in a stream system and may be conducted in state or federal court. In 1952, Congress passed the McCarran Amendment, which waives federal sovereign immunity so that the federal government's and the Pueblos' water rights could be determined in state as well as federal court. That concept was not fully understood in the late 1960s, so many of the cases for tributaries to the Rio Grande were filed in federal court.

Pueblo and Tribal water rights belong to the Pueblo or Tribe, rather than individuals, and are adjudicated to that governmental entity. Since the water rights are addressed according to the watershed and the state in which they are located, Pueblos and Tribes may have to pursue their water rights in more than one adjudication. Pueblo and Tribal water rights are determined and described under federal law. They may assert aboriginal and federal reserved water rights claims that are not subject to rules of beneficial use, forfeiture or abandonment, and state law claims, which are subject to the same rules as non-Indian rights. Some Pueblos and Tribes also claim storage rights and contract water rights. Common law theories or doctrines pertaining to Indians continue to be judicially refined and to evolve so that discussing the nature and extent of "Indian water rights" is a complex topic.

Water Distribution

The term "prior appropriation" describes a water management system where, in times of shortage, water is allocated first, and in full, to the entity or person who has the water right with the oldest priority date and then to rights with successively junior priorities until the supply

Stream System (Case Name)	Pueblo/Tribe/Nation
Chama (Aragon)	Jicarilla Apache Nation Ohkay Owingeh
Jemez (Abousleman)	Pueblo of Jemez Pueblo of Santa Ana Pueblo of Zia
Nambé-Tesuque-Pojoaque (Aamodt)	Pueblo of Nambé Pueblo of Pojoaque Pueblo de San Ildefonso Pueblo of Tesuque
Pecos (Lewis)	Mescalero Apache Nation
San Juan	Jicarilla Apache Nation Navajo Nation Ute Mountain Ute Nation
San Jose (Kerr McGee)	Navajo Nation Pueblo of Acoma Pueblo of Laguna
Santa Cruz/ Truchas (Abbott)	Ohkay Owingeh Santa Clara Pueblo
Taos (Abeyta)	Taos Pueblo
Zuni (A&R Productions)	Zuni Indian Tribe Navajo Nation

runs out. Shortages may be brought on by variable weather, increased population, early snow melt, over-appropriation, and increased demands *per capita*. This water management system is commonly applied across the West, as well as in New Mexico.

Basis for Water Rights

In New Mexico, as in most of the West, all non-Indian water rights are determined and described under state law. The priority of a state law water right is based on *when* the water is put to beneficial use and the quantity is based on *how much* is put to beneficial use. To preserve a water right under state law, the beneficial use must be continuous, thus giving rise to the maxim, "use it or lose it."

In contrast, Tribes' and Pueblos' water rights are determined and described under federal law. This rule was developed in 1908 by the U.S. Supreme Court in the case, *Winters v. U.S.,* involving non-Indian irrigators and Gros Ventre and Assiniboine Indians on the Fort Belknap Reservation over water in the Milk River of Montana. The U.S. Supreme Court decided that when Congress establishes a reservation, it implicitly reserves water in an amount sufficient to meet the purpose of the reservation, now and into the future, and that the right will have a priority as of the date of the reservation. Federal Tribal rights are referred to as "federal reserve rights." Pueblos may be entitled to aboriginal rights that were recognized under Spanish and Mexican law and preserved when New Mexico came into the United States under the Treaty of Guadalupe Hidalgo in 1848.

Priority

A Tribal reserved water right priority is as of the date when the lands were set aside by the federal government. Pueblo water rights on grant lands have a "immemorial, aboriginal, or first priority" because the lands a) have been occupied and the water used since before Europeans entered the territory, b) were recognized by prior sovereigns, c) came into the United States protected by the Treaty of Guadalupe Hidalgo, and d) were never relinquished to the federal government. Pueblos and Tribes typically have the earliest dates in a water system.

Quantification

Under state law, water right quantification for non-Indians is relatively straightforward. The method of quantification depends on the purpose to which the water right is applied and the measure is beneficial use. Non-Indian irrigation rights are measured by the number of irrigated acres, multiplied by the consumptive irrigation requirement assigned to the area, or that amount necessary to grow the crops generally grown in the area. The water must be used for that purpose and must be used through time in order to maintain the water right.

Tribal and Pueblo water rights are quantified differently. The first step in tribal water right quantification for reserved lands involves looking at the purpose for which the reservation was set aside. If the purpose is for agriculture, the "Practicably Irrigable Acreage" (PIA) standard is used. In the *Aamodt* case, the standard applied to grant lands is "historically irrigated acreage" (HIA). Tribes may acquire contract and state law rights as well.

PIA Standard: In the case of agricultural reservations, the U.S. Supreme Court case of *Arizona v. California,* announced in 1963 that tribal water quantification would be based on PIA, not actually irrigated acreage. In accord with *Winters*, the Court adjudicated enough water to irrigate all the practicably irrigable acreage on the affected reservations, in order to serve the current, as well as the future agricultural needs of the Indians. PIA claims have been litigated in New Mexico for the Mescalero Apache

The method of quantification depends on the purpose to which the water right is applied.

Nation in *State ex. rel. Reynolds & Pecos Valley Artesian Conservation District v. L.T. Lewis, et al*. PIA awards tend to be very large.

Replacements for the PIA standard have been proposed. In a draft opinion before her recusal in the Big Horn Adjudication in 1988, Supreme Court Justice O'Connor advocated a doctrine to require courts to apply reserved rights with "sensitivity" to state water users. The Arizona Supreme Court in 2001 proposed the "Homeland Standard," a balancing test, which would weigh all of a tribe's economic activities, agricultural and non-agricultural, to decide the amount of water needed for their well-being. In the meantime, PIA survives as the measure of how to quantify Indian reservation water rights.

HIA Standard: Pueblo Indians held aboriginal rights to their land and use of water under Spanish and Mexican laws. By virtue of the Treaty of Guadalupe Hidalgo, these rights are recognized by the United States. The HIA standard was developed in the *Aamodt* adjudication and has been applied only in that adjudication. The standard recognizes prior rights of Pueblos to water necessary for domestic use and for irrigation of all acreage under cultivation between 1846 and the passage of the Pueblo Lands Act of 1924. The HIA standard affords the Pueblos the earliest priority date in the Rio Pojoaque stream system but severely restricts the amount of acreage that is used to calculate the amount of water allocated to them. The amount of water per acre, commonly called "duty," is the same as for the non-Indians. The HIA standard does not preclude the Pueblos from also having federal reserved rights, if the federal government sets aside public domain land for them, or from acquiring contract or state law rights.

Under either standard, Tribes and Pueblos are not limited to using their federal law water rights in the manner suggested by the quantification standard; that is PIA or HIA measured water does not need to be used for irrigation. They also do not have to be actively using the water at the time of quantification and are not subject to the "use it or lose it" rule. They do not get permits from the State Engineer for any federal reserved right. In New Mexico, as across the United States, Indian water rights remain for the most part undefined. These rights are generally believed to have early priority dates for large amounts. Once defined, these rights will be satisfied in priority in times of shortage under the prior appropriation water management system.

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Over the last century, non-Indian development burgeoned as the U.S. Bureau of Reclamation developed dams and other government irrigation projects, and states crafted interstate river compacts allocating water between them. Water was captured and rights were allocated and managed without knowledge or consideration of Indian water claims. Consequently, watersheds' supplies were fully or over-appropriated in filling the demands of non-Indians. Now Indians' claims are being defined and the complexion of watershed resources, management, and the demands on the resource are changing.

A final quantification of senior tribal water rights is vital, so much so that New Mexico declared the resolution of tribal claims as a critical statewide priority in the State Water Plan of 2003. The emerging nature of the law, the stakes, and the amounts of time, resources, and money required make accomplishing this task very challenging.

Government-to-Government Relations

Tribes, Pueblos, and Nations assert inherent sovereignty and treaty rights as the basis for many of their positions on water policy. Concerns about compromising sovereignty and senior water rights have kept some Tribes away from the negotiating table, but reliance on litigation is inescapably complex, costly, and time consuming. All sides are beginning to emphasize the importance of government-to-government consultations on water issues. For example, both state and Tribal entities support negotiated shortage-sharing agreements as alternatives to priority administration, provided that the Tribal or Pueblo's senior water rights are recognized. Increasingly, non-Indian governments are employing tribal liaisons to increase communication and cooperation between governments.

Litigation

The State and the Pueblos are actively litigating the claims of the Pueblos of Acoma and Laguna in the *State of New Mexico v. Kerr McGee, et.al.* (Rio San Jose) adjudication; the claims of the Navajo Nation in the *State of New Mexico v. A&R* (Zuni River) adjudication; and the claims of the Pueblos of Jemez, Santa Ana, and Zia in the *State of New Mexico v. Abousleman* (Rio Jemez) adjudication.

Settlement

The 2003 State Water Plan points out the need for the State to commit the necessary funds and resources to settle Indian water rights claims. In 2005–2006, the State entered into three settlement agreements to resolve the water rights claims of one Nation and five Pueblos: the Navajo Nation in the *New Mexico v. United States* (San Juan River) adjudication; Taos Pueblo in the *State of New Mexico v. Abeyta* (Rio Hondo and Rio Pueblo de Taos) adjudication; and Pojoaque, San Ildefonso, Nambé and Tesuque Pueblos in the adjudication *New Mexico v. Aamodt* (Rio Nambé, Rio Pojoaque and Rio Tesuque) adjudication. Between 2009 and 2010,

Settlement	Federal Contribution	State Contribution	Local Contribution
Aamodt	$174.3 million	• $50 million ($45.5M for construction of non-Pueblo part of water system; $4M for non-Pueblo connection fund; $500,000 for mitigation of impacts of Pueblo use on non-Pueblo wells)	County of Santa Fe • $7.4 million for construction of County part of water system • $14 million for additional County connections
Navajo	984.1 million	• $50 million, minus previous State contributions or cost share credit toward Navajo Gallup Project (required) • $10 million for non-Indian ditch rehabilitation (not-required)	
Taos	124 million	• $6.9 million to acquire water rights for non-Pueblo parties • $12.1 million for Mutual Benefits Projects, which offset surface water reduction from groundwater pumping	
Total	1,297.4 million	• $129 million (rounded) (plus related indexing)	

Congress approved these settlements and all three are now being implemented.

The Pueblos of Jemez, Santa Ana, and Zia were in settlement talks but have returned to litigation. The parties in *State of New Mexico v. Abbott* for the Santa Cruz/Truchas watersheds are now engaged in settlement talks for Ohkay Owingeh (San Juan Pueblo). In March of 2013, the State and the Jicarilla Apache Nation successfully concluded years of negotiation and collaborative technical work in the *State of New Mexico v. Aragon* (Rio Chama) adjudication with the entry of a Consent Order recognizing the Nation's water rights on lands acquired since the entry of the 1998 Jicarilla Apache Nation decree. Finally, the court in the *A&R Productions* adjudication (Zuni River) granted a stay on December 10, 2013, in the litigation of the Zuni Pueblo sub-proceeding so that the parties can explore entering into settlement talks.

Concerted efforts to obtain funding for implementation of the settlements got started in 2007, both in Congress and in the New Mexico Legislature. The federal contribution will be about $1.3 billion. The state contribution will be about $130 million, to which credits may be applied. The local contributions will total about $93.2 million. The overall cost of the three settlements will be about $1.5 billion. For more information see the link below for 2013 Indian Water Rights Settlement Update to the Interim Indian Affairs Committee below.

Federal Funding: In June 2007, Senator Pete Domenici introduced a ten-year funding plan (S. 1643) to raise an estimated $1.37 billion to pay the federal share of implementing the pending settlements. His bill was entitled "Reclamation Water Settlements Fund Act," which was eventually approved by the Senate Energy and Natural Resources Committee but lapsed at the end of 2008. Then in 2008 and again in 2009, Senator Bingaman added the Reclamation Water Settlements Fund for the three settlements to the "Omnibus Public Land Management Act." This omnibus bill became law on March 30, 2009.

If the benchmarks, schedules, and funding obligations are not substantially met, the settlements will fail. Failure means a return to litigation.

The Claims Resolution Act of 2010 approved the Taos Settlement, as well as the Nambé, Pojoaque, San Ildefonso, and Tesuque Settlement. The Act also appropriated and authorized millions to meet the federal obligations for these and the Navajo Nation Settlement.

State Funding: The majority of the State's share of the funding remains to be appropriated. In 2007, the State made a "down payment" of $10 million to its Indian Water Rights Settlement Fund, to be used for the State's contribution for three Indian water rights settlements. In 2011, Legislature appropriated $15 million in Severance Tax Bonds to the fund and in 2013, it appropriated $10 million; the total amount of State funding to date is $35 million. The State's total contribution will be $130 million in un-indexed dollars for the three settlements and will require substantial appropriations for the next several years. The total amount required from the State by the three settlements will require continued annual appropriations of $15 million through 2017.

Congress built benchmarks and timetables into each of the Acts approving the three settlements. If the benchmarks, schedules, and funding obligations are not substantially met, the settlements will fail, which means a return to litigation.

For more information, please see the "Navajo-Gallup Water Supply Project", the "NPT Pueblos Settlement and the *Aamodt* Adjudication", and the "Taos Pueblo Water Rights Settlement" chapters in this edition of *Water Matters!*.

Settlement or Litigation: The *Aamodt* parties litigated the Pueblos' claims from 1966 to 2000 without reaching an end. The parties reached a settlement in six years. It took four years for the settlement to wend through Congress. The settlement must be substan-

tially executed by 2024. Other adjudications have a similar story: today, two Indian Nations have adjudicated water rights; five Pueblos and one Indian Nation have settlements approved by Congress and that are being implemented; one Pueblo is in settlement talks; nine others are in litigation; and seven have not yet started down this path. One way or another, the water rights of Indian peoples whose homelands are located in New Mexico will be determined, and they will have a significant effect on the State and its operations.

By Michael Osborn, Esq. (2008)
Latest Update by Darcy Bushnell, Esq. (2013)

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Susan Kelly, J.D.

DL Sanders, Chief Counsel, New Mexico Office of the State Engineer

Tim Vollmann, Esq., attorney representing Indian tribes

"Groundwater is a very small percentage of the Earth's water."

EPA, *Water Cycle and Water Conservation,* **www.epa.gov/regional/students/pdfs/gndw_712.pdf**

Groundwater

Since the late nineteenth century, New Mexicans have been developing the state's groundwater resources. From hand-dug wells to proposed wells that could penetrate to 12,000 feet, residents have sought sources to supplement and replace surface water. The state relies upon groundwater to supply almost 50 percent of its needs.

The 1885–1904 drought led to early groundwater development in the Roswell Artesian Basin area in eastern New Mexico and in the southwestern part of the state. Residents of the Roswell and Artesia areas drilled their first wells in 1891 and constructed the first large municipal well in 1903. A few years later, agricultural development took off, creating a successful economy based on groundwater. Extensive shallow groundwater development took place in the 1930s and withdrawals on average exceeded the projected average natural recharge by 80 percent in the 1950s.

In the Gila River and Mimbres River basins, available surface water and rainfall were not sufficiently reliable for the growing agricultural pursuits. Groundwater pumping supplemented the other available resources.

In 1931, the New Mexico legislature passed the state's Groundwater Code in response to groundwater pumping in the Roswell area. The code gave the State Engineer administrative control over groundwater pumping after the Engineer "declared" a groundwater basin; that is, identified a groundwater source of supply with "reasonably ascertainable boundaries." In the eighty years since the passage of the Groundwater Code, the State Engineer has declared basins, when in his judgment, the declaration was necessary to allow for the protection of senior water rights in the area. By 2006, all groundwater basins in the state had been declared.

The drought of the 1940s and 1950s intensified interest in groundwater pumping as surface water supplies and precipitation dwindled. The

The 1885-1904 drought led to early groundwater development in the Roswell Artesian Basin area in eastern New Mexico and in the southwestern part of the state.

introduction of new technologies and population growth caused New Mexico groundwater development to explode after World War II.

Pumping has caused many New Mexico water tables to drop. A declining aquifer can affect surface supply if surface water drains into it to fill the void. This situation reduces the amount of surface water available for surface water rights, which are often senior to groundwater rights.

In City of Albuquerque v. Reynolds, the New Mexico Supreme Court affirmed that the New Mexico State Engineer has the authority to recognize the connection between surface and groundwater in his/her administration of water. Thus connected surface and groundwater must be considered together in any analysis of water rights.

As of 2009, New Mexico used about 1.9 million acre-feet of groundwater each year for agricultural, municipal, and other purposes. According to the National Groundwater Association, groundwater supplies 47 percent of the water used in New Mexico. The Association reported the annual usage in 2011 as follows:

Purpose	MGD	% total GW	% total supply for purpose
Public Supply	249	15%	87%
Household (self supplied)	32	02%	100%
Irrigation	1,270	76%	45%
Livestock/ Aquaculture	49	03%	70%
Industrial (self supplied)	12	01%	87%
Mining	57	03%	98%
Thermoelectric	10	01%	19%

As the population grows and drought intensifies, groundwater sources are tapped with increasing urgency. Limited steps are being taken to preserve groundwater through conservation, groundwater recharge, and regulation.

Groundwater Basins of New Mexico

There are thirty-nine groundwater basins in New Mexico. Some are isolated or closed basins and some are hydrologically connected to surface water. An isolated or closed basin, encased by surrounding geology, does not receive significant recharge from surface water or precipitation.

Groundwater withdrawal that exceeds a basin's recharge is known as "mining," "dewatering," or "overdrafting." Examples of mined aquifers in New Mexico include the Ogallala Aquifer of eastern New Mexico and the Great Plains; the Jornada del Muerto and Hueco Basins of southern New Mexico; the Estancia Basin east of Albuquerque; and the Sandia Mountains. Some basins are not well connected to surface water sources and recover from pumping slowly. Other basins, such as the Albuquerque Basin are well connected to surface water and receive recharge from stream flows.

Underlying many declared groundwater basins are undefined deep water basins or aquifers. Toward the end of the twentieth century, attention turned to this groundwater as a possible source for meeting New Mexico's increasing demand. The nature of deep groundwater is not well understood, but it is less dependent upon surface water than shallow groundwater basins for recharge. It is not accessed frequently because of the expense of deep drilling and uncertainty about its quality.

Regulatory Institutional Structures

State, federal, and tribal governments each manage some aspects of groundwater. The federal government has long deferred to state law in this arena; however, there are exceptions where the federal government has a management or regulatory role. Some tribes have developed and adopted tribal water codes which include provisions regarding groundwater management.

State Institutions: The public owns all water, including groundwater, in New Mexico, with the right to use water established by state law. The New Mexico Office of the State Engineer (OSE) administers the state's water resources through the supervision, measurement, appropriation, and distribution of all surface and groundwater in the state. Under the 1931 Groundwater Code, the State Engineer gains jurisdiction over groundwater by delineating or "declaring" groundwater basins. The Engineer creates water districts and appoints water masters to help actively manage both ground and surface water, to assist with compliance issues, and to administer water distribution on a daily basis.

Rules, Regulations, and Guidelines: The statutes provide the State Engineer with the authority to develop rules and regulations to carry out the purposes of the New Mexico water codes. The Engineer has adopted general groundwater regulations that address:

- Rights that were developed prior to the declaration of a basin;
- Well permitting processes;
- Licensing of uses;
- Construction of wells;
- Changes to location, place, or purpose of use;
- Changes of ownership;
- Supplemental, deepened and repaired wells;
- Well plugging;
- Termination of water use;
- Metering and reporting requirements; and
- Transport/storage of water.

Appropriations, Declarations, Permits, and Licenses: State Engineer documents that describe appropriations include declarations, permits, licenses, or some combination of the three. These provide the State Engineer with administrative information about groundwater uses. Prior to the State Engineer's declaration of a groundwater basin, an appropriator was not required to document or to request permission to develop a new groundwater use.

Once a basin is declared, all new groundwater appropriations, alterations to existing uses, and drilling of supplemental or replacement wells must have a permit from the State Engineer. Notice is made and anyone objecting to the proposed action may file an objection with the OSE. An objection must include discussion of substantial and specific impairment to the objector's existing rights or proof that granting the permit would be contrary to the public welfare and/or the conservation of water.

The OSE's Administrative Hearing Unit (ALU) hears challenges, takes evidence, and renders decisions. The hearing examiner submits a report and recommendations to the State Engineer for disposition. The decisions may be appealed to the district court in the county where the diversion is located. Once a well is drilled and water is put to beneficial use, the regulations provide that an applicant shall prepare and file a final inspection and report prepared by a registered survey professional. When that step is completed, the State Engineer will issue a "Certificate and License to Appropriate." A limited number of licenses have been issued throughout the state.

There are 39 underground water basins in New Mexico. Some of these are isolated or closed basins and some are hydrologically connected to surface water.

The Engineer declares basins in response to increased well development, aquifer drawdowns, and impacts on surface-water that put existing interstate and intrastate obligations and uses at risk.

Mined Groundwater Basins: The process for permitting or licensing new or changed uses is generally the same for all groundwater appropriations. The State Engineer may develop administrative guidelines for issuing permits for new appropriations and changes to uses in mined groundwater basins. The goal of administering groundwater basins is to extend their productive life by regulating the rate of dewatering. The Engineer develops regulations or guidelines after determining that a basin has been fully appropriated. This determination is captured in an order which closes the basin to new water use permits for an indefinite period.

The State Engineer considers developing guidelines when a groundwater basin shows signs of significant stress. Problems that have led to guidelines include: domestic wells going dry and irrigation wells experiencing reduced production in the Curry County-Portales Basin; declining water levels and deteriorating water quality in the Estancia and Tularosa Basins; and, groundwater depletion effects on the Rio Grande from Albuquerque's municipal pumping on senior users, Compact obligations, and land subsidence. These conditions signaled a need for more careful and restrictive administration.

The goal of the guidelines is to guide OSE staff in the administration of the groundwater to 1) assure the orderly development of the water resources within the basin; 2) meet the statutory obligations regarding protection of the senior users; and, 3) extend the life of these basins so that they have a minimum of forty years of productivity.

The State Engineer can also declare a Critical Management Area (CMA) within a mined basin. A CMA defines an area where water level decline rates require additional protection for the basin. It generally includes any area where there is insufficient groundwater to sustain existing appropriations for a forty-year period. In a CMA, drawdown restrictions are more stringent to maximize the useful life of the designated area.

Pumping Depletions on Surface Water: The State Engineer can condition any new groundwater permit by requiring "offsets" where pumping will cause unacceptable depletions of surface water resources. To meet an offset requirement, a proposed appropriator must acquire a senior surface water right and obtain an OSE permit to transfer it, that is, change the place of use, to the proposed groundwater diversion. The land on which the surface water was used no longer has an appurtenant water right and the right to use water on it is said to be "retired."

Requiring offsets protects the surface flows of the related stream by reducing surface water diversions from a river to accommodate depletion or reduction by pumping. This strategy is a critical part of conjunctive management of surface and groundwater resources.

Domestic and Other Small Uses: The State Engineer's authority over relatively small groundwater withdrawals for domestic, livestock, and temporary purposes is somewhat limited. NMSA 1978, § 72-12-1 and its subparts require applicants to apply for and the State Engineer to issue these permits. The Engineer generally does so without evaluation, public notice, or hearing.

The State Engineer published domestic well regulations in 2006 and amended them in 2011. The State Engineer may declare a Domestic Well Management Area (DWMA) or CMA to protect valid, existing water rights and mined aquifers from the effects of domestic wells. The subsequent guidelines may include more restrictive limits on the amount allowed per domestic use.

Metering: To further the mission of protecting and administering New Mexico's groundwater diversions, the OSE now requires metering, monitoring, and reporting water usage in certain areas. Previously, metering was not required unless by a court order. Metering and reporting allows the State Engineer water masters to monitor for over-diversion and to manage the condition of the aquifer.

The State Engineer requires metering in areas of the Roswell Underground Water Basin, Carlsbad Underground Water Basin, and Capitan Underground Water Basin. The Engineer ordered metering of all groundwater diversions in the Lower Rio Grande Water Master District, except those for domestic or livestock purposes. He signaled that he may order metering of these exceptions at a later date. The Engineer requires affected well owners to obtain, install, maintain, and repair any meter and to report meter readings to the OSE on a biannual or quarterly basis, or more frequently if necessary.

Deep Groundwater Basins: The State Engineer's authority over deep groundwater basins is also limited. In 1967, the legislature passed the original deep groundwater statutes. This action was taken to protect oil and gas interests from involvement in Pecos Compact administration. Between then and 2009 when the legislature amended NMSA 1978, § 72-12-25, the State Engineer did not have authority to administer water from deep groundwater basins. The law only required simple notice for the drilling of a legal well. Under the current statute, the Engineer may obtain regulatory authority over non-potable deep groundwater for any use except oil and gas exploration and production, prospecting, mining, road construction, agriculture, generation of electricity, use in industrial processes, or geothermal use. Effectively, the Engineer's authority is limited to uses for municipal purposes. To obtain authority to regulate this water in the same manner as other groundwater, the State Engineer must declare a deep groundwater basin.

In a presentation in 2009, then State Engineer, John D'Antonio, stated if a deep aquifer was hydrologically connected to a shallow aquifer, there was no need to declare the deep basin. He outlined the next steps for the OSE to pursue:

1. Declaring non-potable deep water aquifers if technically defensible;
2. Determining the legal significance of the Notices of Intent filed and published prior to 2009;
3. Formalizing procedures for filing applications to appropriate water from deep aquifers;
4. Formalizing procedures to manage drilling of and reporting of usage from deep wells;
5. Setting a well-defined process to facilitate development of deep non-potable resources while protecting water rights and compacts; and
6. Recognizing that the economics of development will limit the use of deep aquifer water in the near term.

Today, OSE administrative procedures require interested parties to submit a notice of intent and to file an exploratory well permit application and proof of publication in the newspaper. In order to avoid the OSE permitting requirements, the owner must show the two conditions set out in the statute are met: the depth to water and the non-potable nature of the water.

The Interstate Stream Commission (ISC) protects New Mexico's right to water identified in eight interstate compacts, ensures that the state meets its obligations to its sister states, and makes certain that endangered species are afforded the necessary water. The ISC becomes involved in groundwater management where pumping affects surface water deliveries required under compacts and

Today, most applications are challenged. The OSE's Administrative Hearing Unit hears challenges, takes evidence, and renders decisions.

The State Engineer can also declare a Critical Management Area within a mined basin. A CMA defines an area where excessive water level decline rates require additional protection.

by endangered species. The ISC develops groundwater models to assist in the prediction of groundwater impacts on the rivers in its management of compact obligations. The legislature authorized the ISC to purchase water rights or appropriate water on behalf of any region. Under this authority, the ISC purchases and leases groundwater to supplement Pecos River flows so New Mexico can meet its obligations to Texas under the Pecos Compact.

Federal Management of Water: The federal government generally defers to state law for the management of water. In *California Oregon Power Co. v. Beaver Portland Cement Co.,* the United States Supreme Court addressed the question of federal involvement in water regulation in the western states. It recognized that water use "generally was fixed and regulated by local rules and customs." This approach included the doctrine of prior appropriation and was formalized in the Mining Act of 1866, the Desert Lands Act of 1877, and their subsequent amendments. The Supreme Court held that:

> …[F]ollowing 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.

The Court went on to observe in a footnote that "Congress, since the passage of the Desert Land Act, has repeatedly recognized the supremacy of state law in respect of the acquisition of water," citing the Reclamation Act of 1902.

However, the federal government is not without constitutional authority to regulate or influence groundwater management. In the *Sporhase v. Nebraska* case, the United States Supreme Court found that the Commerce Clause clearly gives Congress the "affirmative power… to implement its own policies concerning [groundwater] regulation…. Groundwater overdraft is a national problem and Congress has the power to deal with it on that scale."

The effect of groundwater pumping on surface water rights is playing out in New Mexico's Lower Rio Grande water rights state court adjudication. The United States sought to protect its surface water rights for the federal Rio Grande Project from depletions caused by groundwater pumping in the area. As a matter of both state and federal law, the United States asserted that the source of the water for the Project is "(1) all the surface water in the lower Rio Grande and (2) water in the ground hydrologically connected to surface-waters in the lower Rio Grande." The state and other responding parties countered that the United States' claim is unsupported by New Mexico state law. On August 16, 2012, the state adjudication court found that the Project right being adjudicated is limited to a surface right and ruled that the federal claim is beyond the scope of the adjudication.

Tribal Institutions: The water rights of Native Americans are generally identified and defined under federal law. In *Winters v. United States*, the United States Supreme Court held that when the federal government created reservations, it set aside both lands and water. These rights are known as federal reserved rights or *Winters* rights. This holding could be interpreted to mean that reservation tribes have a right to the water itself and certainly means that they have the right to the use of the water. While this issue has not been addressed head-on by a court or commentator, it certainly underlies questions of administration.

Most state and federal adjudication courts have held that tribes have *Winters* rights to groundwater as well as to surface-water. In New Mexico, many of the Native Americans are Pueblo peoples who have held their lands and waters long before the arrival of other Americans. In its 1985 opinion, the Aamodt federal district court concluded that the Pueblos' water rights under Spain and Mexico law still exist and could be satisfied from either surface water or hydrologically connected groundwater. Later in 2001, the *Aamodt* court examined the question of whether the Pueblos own groundwater. It held that the Pueblos do not own groundwater but rather developed rights to use it.

Development of a tribal water code is one avenue to groundwater administration within tribal boundaries. The Navajo Nation, for instance, asserts ownership of full equitable title to groundwater through the Navajo Nation Water Code. The Nation's situation is not representative. Only a few tribes regulate the allocation of their surface and groundwater. Under the Indian Reorganization Act of 1934, tribes must obtain approval of the secretary of the Department of Interior when enacting laws. Under pressure from western states, the U.S. Department of Interior stopped approving tribal water codes in 1975 until such time as it could promulgate appropriate rules for the use of water on tribal lands. To date, these rules have not been written.

Native American water settlements, however, have addressed administration in a variety of ways. Tribes may agree to submit to local state engineer administration. In the *Aamodt* Litigation Settlement Act of 2010, the Pueblos agreed to inform the local state engineer or non-Indian water users about aspects of their water management. In the Navajo proposed final decree arising out of the Northwestern New Mexico Rural Water Projects Act Settlement Act of 2009, the Nation agreed to seek New Mexico State Engineer approval of any lease of their rights for uses off of trust lands. Tribes may also agree to forbearance provisions or to administer through tribal water codes as set forth in the Crow Tribe Water Rights Settlement Act of 2010.

In a survey conducted by the Tribal Law Journal several New Mexico tribes indicated that they have water codes.

Key Principles of New Mexico Law Concerning Groundwater

In New Mexico, water belongs to the public, but individuals, public entities, and private entities may acquire a right to use water. State statutes identify the core elements of water rights, which include: priority, amount, purpose, periods, and place of use, and, as to irrigation water, the specific tracts of land to which it is appurtenant. These principles apply to both surface and groundwater.

Permits: By issuing a permit the State Engineer grants the applicant permission to drill a well and to develop water up to a certain amount. The permit is not proof of a water right in and of itself. The appropriator must diligently pursue development and application of water to beneficial use. The maximum amount allowed under a permit is governed by regulation and/or adjudication. Following development, the Engineer may issue a license upon inspection and proof of actual beneficial use. The hierarchy of formal recognition of a ground or surface water right has a declaration of water use at the bottom, rises through a permit to a license, and ends up with a decreed right from a court.

The decision of whether to issue a groundwater permit depends on the type of permit desired; whether unappropriated

To further the mission of protecting and administering New Mexico's groundwater diversions, the State Engineer now requires metering, monitoring, and reporting water usage in certain areas.

The Interstate Stream Commission protects New Mexico's right to water under eight interstate compacts, ensures the state meets its obligations to its sister states, and makes certain that endangered species are afforded necessary water.

water is available; whether senior groundwater users will be impaired; whether additional depletions on fully appropriated streams will occur or interstate compact streams will be impaired; whether the use is contrary to the conservation of water in the State; and, whether granting the permit will be detrimental to public welfare.

The State Engineer determines impairment on a case-by-case basis. There is no statutory guidance except that the impairment must be substantial and specific to existing water rights. Lowering of a water level in a well, shortening of the useful life of a well, adding to lift costs, reducing the ability to produce, slight increases in salinity, and making it necessary to drill more wells to produce the same amount of water do not necessarily constitute impairment, but these factors provide some evidence of substantial impairment.

If the proposed water right will impair a hydrologically connected surface water right, the State Engineer will deny the application unless that effect is *de minimis*, the permit can be conditioned to avoid the impairment, or the effect can be offset. A groundwater applicant can offset pumping effects on the river by purchasing and retiring existing valid senior surface water rights.

There is little case law or statutory guidance regarding the tests of "contrary to the conservation of water within the state or detrimental to the public welfare of the state." These tests are also examined on a case-by-case basis and may be overcome by a showing of conservation practices or benefit to the public welfare. Recent municipal applications by Albuquerque and Alamogordo were supported by descriptions of present and future conservation successes and plans. One case, *State v. City of Las Vegas,* suggests that the detrimental public welfare test can be overcome where there is evidence of well development as a part of a municipality's forty-year plan to accommodate reasonable population growth. However, development of such wells could meet the test of "detrimental to the public welfare," if the proposed development threatens compact obligations, municipal water supply, or senior rights.

Priority and Priority Calls: The priority of a water right is related to the date on which the water either was put to beneficial use; the date of an application for a permit; or the date of some other indicia of intent to appropriate. The rules for determining a priority date of a groundwater right are the same as for a surface water right. Water associated with a supplemental well is an exception. In that case, the supplemental groundwater right priority relates back to that of the original water right.

Priority calls are the mechanism for managing water when there is a shortage. In that event, the State Engineer arrays the water rights in order of priority and administers deliveries water from the most senior down to the most junior. This system works fairly well for surface water users are involved. However in some cases, such as where senior surface users are downstream from junior groundwater users, the call against the junior users may not result in timely delivery to the seniors because of the time required for the effects to reach the stream.

A Carlsbad Irrigation District (CID) priority call illustrates the problem. The Carlsbad area was settled before the Roswell area, and so surface water rights in Carlsbad are senior to groundwater rights in the Roswell Basin. In order to gain control of illegal and excessive pumping in the Roswell Artesian Basin, the State Engineer initiated the *Lewis* adjudication of water uses in the Basin. In 1976, the CID placed a priority call with the

State Engineer. The Engineer contended that there would be devastating effect on local economies of shutting down groundwater uses in Roswell. It was also not clear that shutting down groundwater uses above the CID would get surface water to the CID farmers. State Engineer policy at the time also allowed administration only where rights were adjudicated. Since the CID's rights were not adjudicated, the Engineer expanded the *Lewis* adjudication to include the rest of the Pecos. As of 2012, the adjudication continues. Although the priority call never materialized, the 2003 Pecos Settlement provided some relief to District farmers through the purchase and retirement of water rights by the state and development of a pumping plan of groundwater from the Roswell artesian aquifer to augment downstream supplies for the farmers.

Domestic Rights: The priority of domestic right is the date on which the application for a permit was filed, if the well was drilled after the affected groundwater basin was declared. The date of a pre-basin well is the date when the well was drilled, dug, or the intent to do so was formed. The amount of a water right depends on the amount of water put to beneficial use, while staying within the permitted cap or maximum. Thus, prior to the 2006 regulations domestic water rights were limited to three acre-feet per year. This water was intended to serve a family's domestic uses, its livestock, and the irrigation of one acre of land for home food production. Today, the average domestic well serves only the household domestic needs and, by regulation in 2006, the State Engineer reduced the cap to one acre-foot per year. These uses cannot be transferred except under very limited circumstances set forth in the 2011 domestic well rule amendments.

Water Transfers: Under New Mexico law, water rights may be severed from the original place or purpose of use and moved to a new place or purpose of use. The State Engineer requires an owner wishing to make a transfer to apply for a permit to do so. As with any permit, the applicant must provide public notice, and if the application is protested, defend the application in a hearing before the OSE's Administrative Hearing Unit. When considering a groundwater right transfer, the State Engineer must consider the local effect of the new withdrawal.

Unresolved Questions

Several groundwater issues we face today include the effects of groundwater pumping on surface-water, groundwater recharge, and groundwater supplies for municipalities.

As groundwater is pumped, a cone of depression is created. A cone of depression is a dewatered area around a well shaft. Surrounding water flows along the cone toward the well shaft from every direction. Over time, the cone of depression expands, lowers the water table, and eventually reaches hydrologically connected surface-water. Where pumping lowers the water table, wells may be impaired or cease to function. Where there is a sufficient connection between surface water and an aquifer, surface water flows into the aquifer and toward the well, thus depleting the surface water resource.

Municipal Wells: In the Albuquerque area, ninety-two municipal wells supplied 19.6 billion gallons of drinking water in 2010. These wells have created cones of depression on both the east and the west sides of the Rio Grande. In 2004, the east side cone covered about 40 miles and in places lowered the water table about 150 feet. While the west side cone is smaller, similar effects were noted.

The effect of groundwater pumping on surface-water rights is playing out in New Mexico's Lower Rio Grande water rights state court adjudication. The United States recently sought to protect its surface-water rights for the federal Rio Grande Project from depletions caused by groundwater pumping in the area.

In New Mexico, water belongs to the public, but individuals, public entities, and private entities may acquire a right to use water.

The USGS developed a groundwater flow model that predicts the effects of Albuquerque's pumping if it continues at the same rate until 2060. The model predicts, even with conservation goals in place, significant aquifer drawdowns and land subsidence. Significant drawdown jeopardizes the city's ability to provide water to its residents into the future. While relatively little land subsidence has been observed in Albuquerque, as depletions continue, the city can look to Tucson's experience. Downtown Tucson has dropped six inches in the last twenty years due to aquifer depletion and suffered property damage and other problems as a result.

In an effort to forestall these problems, the Albuquerque Bernalillo County Water Utility (Utility) was formed and a Water Resources Management Strategy developed. The Strategy's goal is to reduce reliance on the aquifer, to reduce demand through conservation, and to switch to renewable resources.

To reduce reliance on groundwater, the San Juan-Chama Drinking Water Project, which replaces groundwater with treated contract surface water, and reclamation/reuse project, which use treated effluent for irrigated sites such as parks and golf courses, were developed. Through the utility's conservation program, city residents have reduced their use by 252 gallons per person per day in the mid-1990s to 150 gallons per day in 2011. The goal of the programs is to reduce annual pumping to 60,000 acre-feet a year in order to rest the aquifer so that it recovers through recharge. This strategy reserves groundwater for the future and for times of shortage. The strategy also calls for implementing an aquifer storage and recovery program whereby the utility stores water underground during the winter while demand is low for withdrawal in the summer when demand is high. This project is not designed to recharge the aquifer but rather to provide temporary underground storage.

The utility continues to use surface water as it is available but must rely on the groundwater more than originally anticipated. First, the transition to surface water was delayed, and then ash from the Los Conchas fire in the surface water resulted in excessive treatment costs that required reversion to groundwater for two months in 2010. Almost as soon as the San Juan-Chama Project was completed, drought conditions set in. As a result, the San Juan-Chama diversions were reduced by more than half in 2012. Surface flows in the river declined, as did the predicted natural recharge from runoff. In spite of these setbacks, the USGS reports that in several instances, groundwater levels have risen since the city began using surface water supplies.

Rural Wells Supply Growing Cities: Supplying water to municipal users underlies the controversy of the San Agustin Basin Project. In that project, a group of New York-based investors sought a permit from the State Engineer for the right to pump 54,000 acre-feet a year from a deep well field of thirty-seven wells in the San Agustin Plains near Datil, New Mexico. Augustin Plains Ranch, LLC plans to market water to municipalities and the state to help meet obligations under the Rio Grande Compact. The State Engineer denied the application because it was too vague. After losing its court appeals, the Ranch filed a second application. In this application the Ranch proposes to provide water to Rio Rancho and possibly other municipalities.

Groundwater for Agriculture: Agriculture is an intrinsically valued part of the economy of the area. Yet, in our arid climate, crop evapotranspiration rates are high. Under conditions of prolonged drought, available surface water is insufficient to meet the needs of the crops. The irrigators turn to groundwater to keep their crops and economies alive. As the groundwater is mined

and the surface water is depleted through recharge and drought, the obligations to Texas and Mexico under the Compact, to New Mexico and Texas farmers and ranchers in the Rio Grande Project, to the municipalities, and other users become difficult to meet. How to divide and manage the water between all competing interests and obligations during times of plenty and in times of drought is a difficult question.

By Darcy Bushnell, Esq. (2012)

Latest Update by Diego Urbina, University of New Mexico School of Law, Class of 2016

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State and Regional Water Planning in New Mexico

> "New Mexico's challenge is to balance a short water supply with the need to grow, yet preserve the environment and our traditions. The regional water plans, which in turn set the stage for the state-wide plan, will help us get there."
>
> Senator Dede Feldman, New Mexico State Legislature (2008)

> "It's important that when we have supply that won't meet unlimited demand, that we have a plan."
>
> Norm Guame, retired water manager quoted in "State Making New Plan for Water," by John Fleck, *Albuquerque Journal*, December 15, 2013

State Water Planning

A statewide water planning effort was initiated by the New Mexico legislature in the 2003 session. The Interstate Stream Commission (ISC), in collaboration with the Office of the State Engineer (OSE) and the Water Trust Board, was tasked with preparing and implementing a comprehensive state water plan. Regional water planning had begun much earlier, prompted by a lawsuit that El Paso filed against New Mexico in 1983, *El Paso v. Reynolds*.

The State Water Plan Act of 2003 (Act) was intended to promote stewardship of the state's water resources and to establish clear policies and strategies for management of the state's water. The agencies involved in water planning and management were faced with a daunting challenge in addressing the legislative goals. On top of that, the administration announced an intention to complete the plan within a one-year time frame. The legislative goals reflect the need for state water planning to be a major, continuing work program for the State of New Mexico water agencies. Given the current level of funding, the ISC is struggling to fulfill its planning obligations.

State Water Plan Legislative Goals

- Inventory the quantity and quality of water supply under a range of conditions; inventory population and water demand projections
- Include water budgets for the state as a whole and for the major river basins and aquifers
- Develop water conservation, reuse, and recycling strategies and promote non-forfeiture of water rights
- Include a drought management plan to address and prevent drought emergencies
- Recognize the relationship between water availability and land-use decisions
- Promote river and watershed restoration
- Consider policies that balance the protection of culture and the environment with economic health, while providing for efficient transfers of water
- Promote coordination among all levels of government
- Integrate the regional water plans into the State Water Plan
- Integrate plans of water supply purveyors with State Water Plan policies
- Identify water-related infrastructure and management needs
- Promote collaboration with research institutions to develop technology and policies to enhance water supply and management

NMSA 1978, § 72-14-3.1(2003).

2003 State Water Plan: In 2003, the ISC pursued an historic public involvement campaign, conducting 29 meetings around the state. Several thousand citizens became better informed on water issues and had the opportunity to describe the conditions and needs of their communities.

The resulting State Water Plan provided a framework for the issues confronting the state, advanced knowledge about water issues in New Mexico and effectively identified policy initiatives that should move forward. It identified fundamental statewide priorities, goals, and objectives, but given a short time frame, limited funding and the complexity of this effort, the Plan did not come close to completing all of the legislative goals.

Work plans and strategies for the future were included to fully address the legislation. Subsequently, an appendix to the Plan identified major water resource issues by drainage basin. A 2004 implementation report and a 2006 progress report identified actions taken toward each of the strategies.

All of this work represents a concerted effort by the State to understand and address water resource issues. The documents and the information they contain are rich, useful sources of data, representing coordination among agencies, local water providers, and New Mexico citizens. The planning process has become a critical component of water management for the State.

Update of the State Water Plan: In the Act, the legislature required a periodic review of the Plan, to be conducted at least every five years. Therefore in 2008, the ISC embarked on a review that identified several key areas for improvement and highlighted the need to address the effects of climate change in future water planning efforts. Scientific evidence predicts significant reductions in future snowpack and changes in the timing of runoff, which will have important implications for state water supply. The review also considered the implications of changes in water use occurring in New Mexico: water that was once used for rural/agricultural purposes is now being used in urban areas. Urban planning for our cities needs to occur so that New Mexico can grow in sustainable ways without decimating its rural areas.

The planning process has become a critical component of water management for the State.

During the spring of 2009, the ISC held 22 public meetings throughout the State to solicit comments from the public about key water issues for the Plan update. Common issues expressed at multiple meetings included: support for water conservation; water quality protection; better subdivision and land use regulations (to protect water supplies); watershed management; public education; better coordination between state and federal agencies; and protection of the agricultural sector.

Due to limited resources for technical studies, competing goals for staff time and the change in leadership in both the governor's office and the OSE, the 2010 State Water Plan update has yet to be completed. A draft has been prepared and will be available for public input upon final internal review. The State still has numerous steps to take in structuring and implementing state water planning to protect its water and the needs of its citizens. Progress toward fully implementing the Act will be dependent on resources directed toward this effort and a commitment on the part of agencies and decision-makers to use the State Water Plan as a blueprint for management actions and policy direction.

Regional Water Planning

Background: Regional water planning started with a lawsuit filed by Texas against New Mexico. In 1983, El Paso applied for a permit to take groundwater from a New Mexico aquifer. Relying on a statute prohibiting the transfer of water outside the boundaries of New Mexico, the OSE refused to issue the permit. The federal court, in *City*

of El Paso v. Reynolds, found the statute to be unconstitutional. The court relied on the federal Commerce Clause (which gives the federal government authority over commerce between the states) and also upon the U.S. Supreme Court case of *Sporhase v. Nebraska*. The *Sporhase* case held that although water is an article of commerce, a state can give limited preference to its own citizens for the purpose of protecting the health of its citizens—reasoning that this is at the core of the state's police power. In 1985, the New Mexico legislature enacted a statute giving guidance to the OSE on the process for out-of-state uses of water and this led to the 1987 law requiring regional water plans.

It was probably the case that Steve Reynolds believed the utility of the regional plans was in demonstrating that New Mexico needed all of its water and that once the plans were accepted by the ISC, no more regional planning was needed. However, over time both the State and many of the regions have come to realize the plans have immense value as repositories for regional water data, venues for discussion of water management issues, review of regional projects, and many other purposes.

Regions: For regional water planning purposes, the state is divided into 16 regions. The regions are mostly aggregations of counties, rather than representing watersheds or groundwater basins that share a common water supply. Each regional plan was completed in partnership with a local sponsoring agency (acting as fiscal agent) and an oversight committee representing various water user groups in each region. The plans were primarily funded by the ISC with local matching funds. Once a regional plan was completed at the local level, it went through final acceptance by the ISC. Efforts to update the regional water plans are largely stagnant now. About a quarter of the regions have ongoing efforts to update their regional plans, utilizing local funds. State funding for updating regional water plans remains minimal.

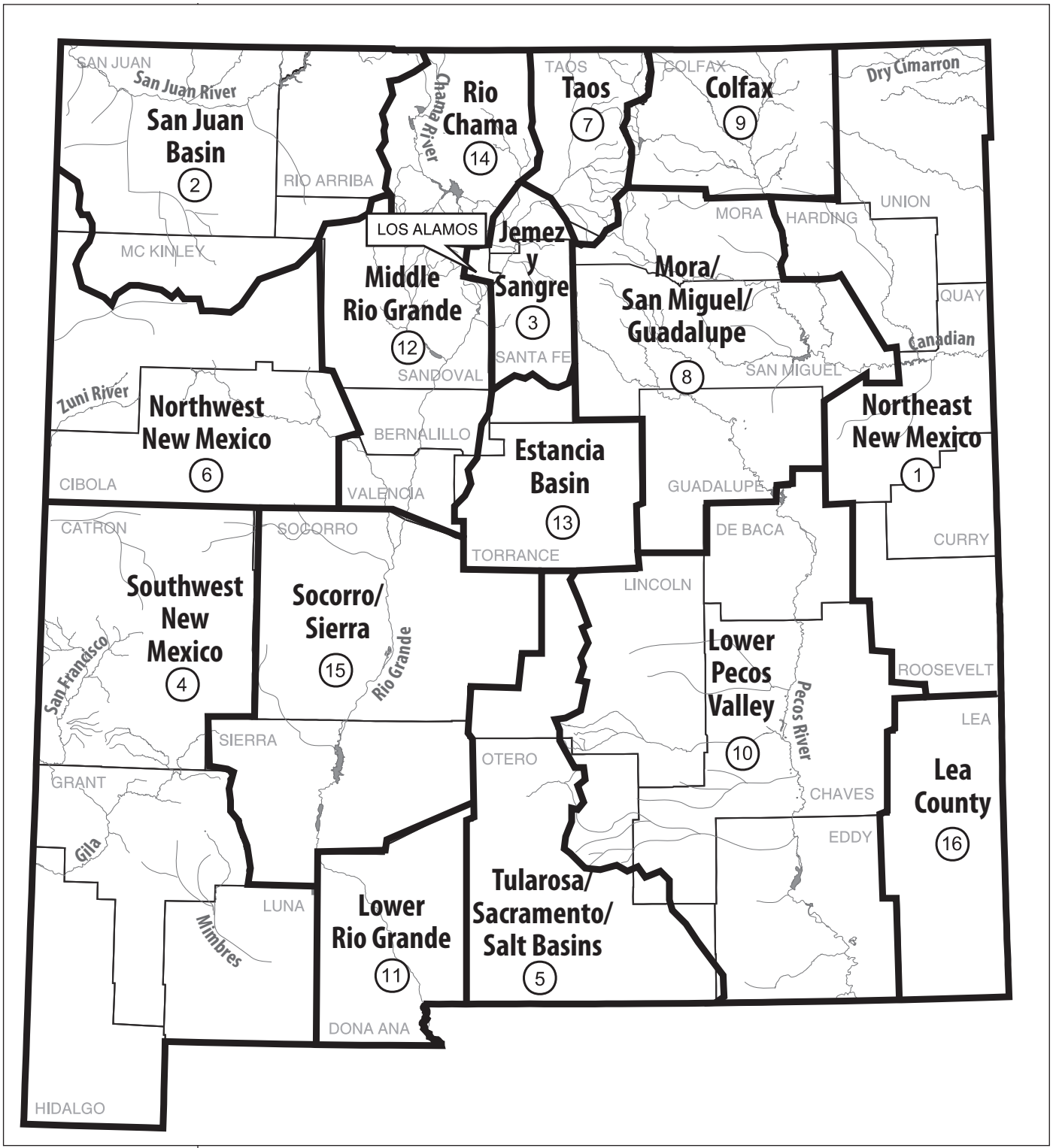
The Regional Plans can all be accessed on the OSE/ISC web site at **http://www.ose.state.nm.us/isc_regional_plans.html**

For regional water planning purposes, the state is divided into 16 regions. The regions are mostly aggregations of counties, rather than representing watersheds or groundwater basins that share a common water supply.

Integration of Regional Water Plans: The 2003 Act set a goal of integrating "regional water plans into the state water plan as appropriate and consistent with state water plan policies and strategies." In 2009, the ISC completed a detailed compilation of information from the 16 regional water plans, yet full integration of the regional water plans still remains a challenge. Full integration would mean that the sum of the parts equals the whole—that all of the regional plans when put together, would result in a cohesive State Water Plan. At present, some projections and assumptions in the regional plans conflict with those of other regions; and there are policies, particularly regarding water transfers from one region to another, that conflict with one another. Integration remains a challenge that will require a concerted effort between the state and regional planners, to complete numerous stakeholder discussions and negotiations throughout the state.

For future planning efforts, there may be regions, watersheds, or water accounting areas that should approach planning from a basin-wide framework—based on hydrology and water accounting instead of political boundaries. As a start toward that effort, the draft State Water Plan Update's Basin profiles include information from the regional water plans.

Upstream-Downstream: An initial attempt by three regions to self-organize in the Middle Rio Grande Basin (Jemez y Sangre, MRG and Socorro/Sierra regions) began in 2006. The three regions are all part of one accounting area under the Rio Grande Compact (between Otowi gage and Elephant Butte Reservoir), but the boundaries for



New Mexico
Sixteen Water Planning Regions
with Rivers and Counties

By C. Kenesson for the Utton Transboundary Resources Center with information provided by Gretel Follingstad, ISC

planning regions don't line up and there are inconsistencies among the three plans. Of critical importance: there is a basin-wide deficit projected if current trends in population growth and water use continue.

The project, initiated by the N.M. Water Dialogue, supported by the McCune Charitable Foundation and the ISC and assisted by the Utton Center at UNM School of Law, was aimed at developing a way to reconcile differences and work on implementation strategies that would be most effectively approached at a basin-wide level. The big issues faced by the Upstream-Downstream group were: How do you integrate water data from different agencies accumulated under different methodologies, assumptions and time frames in a manner that allows decision-makers to see the big picture of water supply and demand? How do you get local and regional water providers to cooperate to protect the common supply? The effort was successful in initiating an understanding of basin-wide issues and concerns.

Consistency: The regional plans were developed according to a regional water planning handbook, which was developed by the ISC in 1994 in conjunction with regional water planners. Still, it is difficult to compare the information among the plans due to varying data formats and levels of detail in the information compiled by water agencies, both local and state.

To support long-term management objectives, it is important to be able to aggregate water information from local providers into a basin-wide perspective. The regional plans could be more easily integrated into the State Water Plan if they are updated in a more consistent format. The New Mexico Water Dialogue, a statewide organization that has been instrumental in initiating and supporting regional water planning, is working with the ISC to develop a new template.

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The compilation of regional water plans identified inconsistencies and included the following recommendations for regional planning:

- Increased stakeholder involvement, especially from water providers
- Stronger linkages to 40-year municipal plans and local land use plans
- Greater dialog with neighboring regions
- Use of scenario planning to reflect uncertainty and variable conditions
- Greater emphasis on planning for drought
- Greater emphasis on constraints to water delivery
- Greater emphasis on potential environmental impacts
- Greater emphasis on energy considerations
- Increased focus on implementation of key programs and projects
- Regular updates
- Annual progress reports
- Need for ongoing funding for regional plans

Compilation of the 16 Regional Water Plans indicated that the high growth projections result in more than 700,000 acre-feet of new diversions in 2040 compared to year 2000 diversions. This reinforces the need for the State to conduct long-range water planning activities.

Public Concerns: Public involvement at a local level was a primary concern in developing the regional plans. Another evolution of regional planning, beyond the

original intent of the Act, is to use the plans to provide guidance on the public's values related to water use in the regions. Many of the plans tried to develop a public welfare statement to help guide the OSE when considering water transfer and other permit applications. But achieving consensus in each region on a public welfare statement was often extremely challenging, for the obvious reason that it is difficult for a group of people with divergent interests and values to agree on what represents the "public welfare."

The public welfare statements in each regional plan for the most part are general in nature and do not provide specific criteria or a process for determining whether a specific water transfer or appropriation would be contrary to public welfare. For example, in cases where two or more public welfare values could potentially be in conflict, such as protecting the natural environment or supporting economic development, there is no process for determining how each public welfare statement should be applied.

In the Taos region, which was the last regional plan completed (in 2008), more specific criteria for defining public welfare were developed and a process for establishing a public welfare review board was proposed. Considerable controversy arose regarding the review board, and the ISC rejected the plan because of it. A mediated process was established to achieve agreement on public welfare. The final statement continues to include criteria for defining public welfare, but the public review board process was not included.

The Taos discussion goes to an essential question about long-range planning: is it a *process* for including the public in continued discussion about decisions or an *end product* outlining projects and policies for the future?

The Taos discussion goes to an essential question about long-range planning: is it a *process* for including the public in continued discussion about decisions or an *end product* outlining projects and policies for the future?

The county of Taos revisited this issue and settled on a new approach. By ordinance, the County created an advisory committee to investigate proposed changes in water use and report findings to the County Commission. Further, the committee will educate the public and make recommendations to the County on whether to protest a proposed water rights transfer.

Water Planning in Other States

There are different approaches to water planning in other states. In some states, such as Colorado and Wyoming, the geographic area covered by a water plan is often organized by surface-water basin instead of political boundaries. In New Mexico, where supplies are heavily dependent on both surface and groundwater and surface and groundwater basins do not always coincide, there would be challenges in reorganizing according to water basin. The Upstream-Downstream effort represents one attempt to think in terms of watersheds and begin to look at the three regions in the middle Rio Grande together for planning purposes. Still, even organizing the Upstream-Downstream area did not get at the breadth of the full Rio Grande basin, which covers the entire middle region of the State. In Jemez y Sangre, there is one overarching plan, but the region is subdivided into more discreet sub-regions for water management purposes.

In addition to the physical dynamics of planning for basins or watersheds, New Mexico has obvious "process" issues needing resolution. For example, the regional planning groups are *ad hoc* and lack structure. Analysis of the compiled regional water plans points to moving from the *ad hoc* regional water planning steering committees to something more formalized to ensure broad-based and comprehensive participation and representation in each region.

Colorado, in comparison, has set up a framework for continuing broad-based discussions of water issues. There, the planning function is a continuing process that is used as a mechanism for public input on decisions. There are basin roundtables established for each of the state's nine major river basins and a "metro roundtable" for the Denver metropolitan area. These basin roundtables facilitate discussions on water issues and encourage locally driven, collaborative solutions. Membership is broad-based but is statutorily defined. The roundtables are each responsible for developing a basin-wide needs assessment using groundwork completed during a statewide water supply study.

Colorado provides continued funding for the roundtables, further reflecting Colorado's view that planning is an important ongoing process, which provides direction for decision-making. If Colorado's system were applied to New Mexico, it is possible to envision that basin groups, such as roundtables or regional planning committees, might provide input on public concerns to the OSE/ISC on projects, policy development and water transfers and applications.

In Wyoming, the state was divided into seven river basins at the beginning of the planning process in 1999, and two basins were studied each year. All of the basin plans have been completed along with a framework plan that summarizes all seven plans. More specific feasibility studies and project plans are derived from the river basin plans. They are now in the phase of updating and revising the basin plans to better define the water resources of the state. Like Colorado, Wyoming approaches basin planning as an on-going process and not a one-time effort. Interestingly, as in New Mexico, the Wyoming statewide plan was created *after* the basin plans were prepared; it assimilates them rather than providing the foundation for them.

In Texas, the state water plan is used as guidance for all activities of the water

Colorado provides continued funding for the roundtables, further reflecting Colorado's view that planning is an important ongoing process, which provides direction for decision-making.

agencies, for funding decisions, and for the permit approval process. The resources made available by the Texas legislature for the Texas state and regional water planning program are considerable and allow for a much greater level of study and oversight of water management activities. In November of 2013, the Texas voters approved a plan to put $2 billion toward a "water implementation fund" for use on projects identified in the State's water plan.

Funding

Colorado, Wyoming, and Texas all provide funds for water planning at levels significantly higher than in New Mexico. Colorado allocates at least $10 million per year to fund basin roundtable activities and projects. In Wyoming, the original seven basin plans were developed with a budget of about $600,000 per basin. Wyoming is allocating $500,000 per year to improve data and collect additional information. In Texas, the State spent $21 million to develop the 16 regional water plans and an additional $15 million for its state water plan. Texas spends millions of dollars each year on a continuing basis to ensure an updated and viable water planning program.

In comparison, New Mexico allocated $55,000 to water planning in 2007. In 2008, there was a special appropriation of $300,000 for State Water Planning, which was used to fund the public meetings, the regional water plan compilation report and facilitation of ISC strategic planning efforts. In 2009, the funding level was again $55,000 and has not increased in 2010 or 2011. According to Representative Andy Nuñez, a consistent supporter of increased funding for water planning, New Mexico has not developed its water planning structure,

as it should. "When compared to other states, New Mexico is lagging behind in providing sufficient funding to protect its water resources." In 2013, the legislature appropriated $400,000. The agency also received a $400,000 grant from the N.M. Finance Authority's Local Government Planning Fund in October of 2013. The ISC projects that if the legislature appropriates an additional $700,000 in the 2014 session, the agency will be able to complete the sixteen regional plans and the state water plan in the next two years.

A major issue in the present fiscal climate is how to fund the necessary planning and technical activities. The State of Kansas presents one example. Kansas created a State Water Plan Fund for the purpose of implementing its State Water Plan. Revenue is subject to annual appropriations and is generated by a water protection fee (3 cents per 1,000 gallons), a variety of other fees and fines and an annual appropriation from the General Fund of $6 million.

Recent Developments

In June of 2013, the Interstate Stream Commission reported to the Legislative Interim Committee on Water and Natural Resources that one of its goals for FY 2014 was to revise the Regional Water Planning Handbook "to provide consistency and accountability in updating the regional water plans… [The revised planning template will] provide for integration of regional water plans, as appropriate, with the State Water Plan." The ISC posted the final "Updated Regional Water Planning Handbook: Guidelines to Preparing Updates to New Mexico Regional Water Plans" to its website in early December of 2013. Other FY 14 goals for the Water Planning program include completing the update of the State Water Plan and, if resources permit, assisting selected regions to update their water plans.

The ISC plans to provide supply and demand projections for a 40-year planning horizon to each of the 16 planning regions to create a common technical foundation for understanding New Mexico's water supply and to correct the with inconsistency noted above. The ISC will be working with each region to develop a summary of legal issues, demographics, and economic forecasts and to broaden the stakeholder participation. The regional committees will identify the infrastructure projects, programs, and policies necessary to balance projected supplies and demands. No not everyone is happy with this plan. Concerns have been expressed about the State cutting out the local level of involvement on this important aspect of a plan and creating a state run system of planning.

Conclusion

In order for New Mexico to best manage its water resources, the State needs to invest in an ongoing planning process. The planning process should systematically address the goals set forth by the legislature and provide a framework for continued public input. The legislature should consider statutorily defined planning groups to set a new direction for a viable regional water planning program. Resources should be allocated for technical studies, including updated supply and demand assessments prepared in a consistent format, to work towards appropriate integration with the State water planning process. The plans should be used as a basis for decision-making and policy guidance at all levels. A steady funding source for these activities should be created. These steps will help to ensure good water resources management for the continued viability of the State.

By Brigette Buynak, Esq. and
Susan Kelly, J.D. (2008)

Latest Update by Sarah Armstrong,
University of New Mexico School of Law,
Class of 2015 (2013)

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Water Conservation

> "Conservation, or the reduction of water use through enhanced efficiency, is becoming an increasingly important component of sustainable resource management."
>
> Kelli L. Larson, Anne Gustafson and Paul Hirt, *Insatiable Thirst and a Finite Supply* (2009)

> "If New Mexico intends to get serious about agricultural water conservation in the future, then one of the first steps that should be taken is accurate accounting of basin-wide water use."
>
> Zohrab Samani and Rhonda Skaggs, *Unintended Consequences of Water Conservation,* N.M. Tech, Decision-Makers Field Guide 2007

New Mexico always has had periods of water shortages, some far more long lasting and devastating than others. As warming temperature and changing weather patterns continue to develop, the likelihood that water shortages—like those felt throughout the state from 2010 through 2013—will occur with greater frequency. These changes can and have caused significant economic and environmental damage, and the risk of more harm will not improve unless we improve our water management significantly.

Water Conservation as a Strategy to Meet Growing Demand with Available Supply

When demand exceeds available water supply, there are two options to close the gap between supply and demand: find new water sources or reduce demand. For many decades, New Mexicans have been acquiring new water sources and developing new methods of accessing and increasing water supply: constructing dams and reservoirs, drilling ever deeper wells, pumping groundwater over long distances, desalination of brackish water, and other means. Continuing this search for the remaining unclaimed water sources will be increasingly more expensive, energy intensive, and environmentally challenging.

Reducing water use through conservation on the other hand increases the available water supply. Every gallon saved is a gallon that doesn't have to be found elsewhere. It is also a relatively inexpensive strategy. Thus, water conservation can go a long way toward ensuring that a community has enough water to meet demand.

Current Statutes—History

Because the population focused on meeting demand by finding and accessing new water supplies for much of New Mexico's history, it was not until the 1980s that incentives for water conservation began to appear in state statutes. Even then the first changes were in response to litigation, not water shortages.

When demand exceeds available water supply, there are two options to close the gap between supply and demand: find new water sources or reduce demand.

In 1983, New Mexico's statutory prohibition against out-of-state transportation of groundwater was declared unconstitutional. The *City of El Paso v. Reynolds* court applied the U.S. Supreme Court's holding in *Sporhase v. Nebraska ex rel. Douglas.* In *Sporhase*, the Supreme Court held that a Nebraska statute prohibiting another state's withdrawal and transportation of water out of Nebraska placed an impermissible burden on interstate commerce. The *Sporhase* court, however, upheld a state's right to base decisions regarding exportation of water resources on conservation and public welfare considerations. A state has the right block water exportation on the basis of protection of the health and well-being of its citizens but not primarily on economic concerns.

In 1985 in response to the *El Paso* ruling, the New Mexico legislature amended several statutes in the water code to mandate that the State Engineer consider whether applications for water rights are "contrary to the conservation of water within the state." Significantly, these criteria apply to all new appropriations and transfers—not just interstate transactions.

Two years later, in 1987—again in response to the *El Paso* ruling—the legislature enacted two statutes creating the regional water planning program. The intent was to identify those water supplies that had not already been appropriated and protect them from interstate transfers as well as to bolster the state's ability to keep water in New Mexico by

Legislative History of Water Conservation Statutes

1985

The statutes governing water were amended to require that applications for new appropriations and transfers be denied if they are "contrary to the conservation of water within the state or detrimental to the public welfare of the state." NMSA 1978, §§ 72-5-5, 72-5-6, 72-5-7, 72-5-23, 72-12-3, and 72-12-7.

A new statute was enacted to provide standing for those asserting legitimate concerns "involving public welfare and conservation of water." NMSA 1978, § 72-5-5.1.

1987

The state's regional water planning program was enacted with the requirement that regional water plans include an "adequate review of water conservation and the effect on the public welfare." NMSA 1978, §§ 72-14-43 and 72-14-44.

1991

The water right forfeiture statutes were amended to add provisions for an exception for water rights placed in a State Engineer-approved water conservation program by a conservancy or irrigation district, acequia, or community ditch association. NMSA 1978, §§ 72-5-28 and 72-12-8.

1995

The Subdivision Act was amended to require that county boards of supervisors/commissioners adopt regulations regarding water conservation. NMSA 1978, § 47-6-9.

1999

The Ground Water Storage and Recovery Act was passed to promote conservation of water within the state through aquifer recharge. NMSA 1978, §§ 72-5A-1 *et seq.*

2003

The water leasing statute was amended to require that applications for leases of water be denied if they are "contrary to the conservation of water within the state." NMSA 1978, § 72-6-5.

The Water Project Finance Act added water conservation projects as qualifying projects for applicants seeking grants or loans from the Water Trust Board. NMSA 1978, § 72-4A-1, *et seq*.

demonstrating that the water was needed for the conservation of water and protection of the public welfare within the state.

It was only in 1995 and the years that followed that the legislature began to amend or create new statutes that:

- Protect water conserved by farmers
- Provide a basis for the Groundwater Storage and Recovery Act
- Ensure that conservation was part of the State Water Plan
- Require counties to adopt water conservation requirements for subdivisions
- Include water conservation projects as qualifying for funding from the Water Trust Fund
- Require water conservation plans
- Authorize grey water reuse

For more information, please see the chapter "State and Regional Water Planning" in this edition of *Water Matters!*.

The State Water Plan Act required that the Plan "develop water conservation strategies and policies to maximize beneficial use, including reuse and recycling by conjunctive management of water resources, and by doing so, to promote non-forfeiture of water rights." NMSA 1978, § 72-14-3.1, *et seq*.

This Act also provided that covered entities—municipalities, counties, and water suppliers providing at least 500 acre-feet of water annually for domestic, industrial, commercial, or governmental uses—may submit water conservation plans. It also required that the entity's plan consider the adoption of codes and ordinances to encourage water conservation measures and drought contingency planning. NMSA 1978, § 72-14-3.2 and 4-37-9.1.

The Water Quality Act was amended to allow up to 250 gallons of gray water per day to be used on residential landscaping. NMSA 1978, §74-6-4.

A statute about irrigation water was clarified: "[I]mproved irrigation methods resulting in conservation of water shall not affect an owner's water rights or quantity of appurtenant acreage." NMSA 1978, § 72-5-18.

2007

This irrigation statute was further amended to add language allowing the State Engineer to approve a water rights transfer—a change in the point of diversion, place, or purpose of use—of the quantity of conserved agricultural water resulting from improved irrigation or agricultural practices, provided that the conservation does not impair existing water rights. NMSA, 1978 § 72-5-18.

A new statute authorized municipalities and counties to develop regulations that require site development standards to encourage conservation of water. NMSA, 1978 § 3-53-2.1.

The ABC's of Water Use and Conservation

There are several distinctions between different forms of water use that effect a determination of whether water is considered to be conserved water. The following discusses some of those distinctions.

The Office of the State Engineer (OSE) issues a report on water withdrawals by category —agriculture, public water supplier, commercial, etc.—every five years. Withdrawals include both water that is "consumed," that is, removed from the system permanently, and water that remains in the system to be used again or sent downstream to meet interstate delivery requirements.

A *consumptive use* consumes all the water; the water is no longer available in the system. Most consumptive uses of water occur through absorption by and evaporation from plants including landscaping, crops, and riparian vegetation (*evapotranspiration*) or evaporation from open water in ponds, rivers, and reservoirs or from soil moisture from precipitation or irrigation. The loss of water from the system is also called a *depletion*. The consumptive use component is the only element of a water right that can be sold or leased for non-agricultural uses.

Water that has been *diverted* from a source, but not consumed, remains in the system. Very little water is consumed for indoor domestic uses, for example, much of it goes to waste water treatment plants or septic systems. Often waste water or treated effluent is reused or returned to the river where it becomes available for reuse downstream. Likewise, more water is diverted to deliver water to crops than is consumed by the crop; the excess water returns to the stream or groundwater.

The consumptive use component is the only element of a water right that can be sold or leased for non-agricultural uses.

Agricultural water rights are divided into several components. The *consumptive irrigation requirement* (CIR) is the amount of water consumed by the plant and the amounts evaporated from the plants or the soil surfaces near the plant. The CIR quantity is not the measure of what can be sold as part of a water right for non-agricultural purposes.

A farmer also has a *farm delivery requirement* (FDR) which is the amount needed to get water to the field; it is ultimately returned to the stream system to be used downstream, minus some incidental losses to leakage or evaporation. The FDR cannot be sold as part of a water right for non-agricultural purposes.

Developments in Water Conservation

Water conservation opportunities exist in municipal, commercial, industrial, agricultural, riparian, and open water environments. Of these, municipal conservation is the most discussed and most easily implemented. Ways to conserve water in agriculture are less understood, less easily implemented, and/or more costly. Other opportunities for conservation in riparian areas and storage reservoirs are beyond the scope of this paper.

Municipal Water Conservation: Urban water use is rising in New Mexico as population increases. Population projections indicate that demand will increase dramatically into the future. New Mexico's population was approximately 2,085,538 in 2013, up from 1,819,046 reported in the 2000 federal census. A recent population projection by the Bureau of Business and Economic Research (BBER) estimates that there will be 2,540,145 people in the state in 2020 and 3,710,875 in 2060. The fastest growing regions are those in and around the major urban centers particularly along the middle and lower Rio Grande reaches.

Residential municipal water use is divided into two components: indoors use for domestic purposes and outdoors use for

landscape purposes. Most domestic water is not "consumed" but flows into waste water treatment systems and is reused, returns to a river, or recharges into a groundwater basin. Indoor use is concentrated in the bathroom. Typically, water used by older toilets is the largest source of indoor water use. Installing a highly efficient or ultra low-flow toilet and other water efficient fixtures can reduce average indoor water use by about 35 percent without any change in lifestyle. To promote water conservation, many communities are changing their rate structures to tier or block rates, charging customers more as their water use increases.

Water used outdoors for landscaping is consumed by plants and evaporation. Outdoor water consumption is a large proportion of residential water use, which ranges from 20 percent in Tucson, Arizona (2012), to 33 percent in El Paso (2011), to 60 percent in Las Vegas, Nevada (2012). Albuquerque weighs in at 36 percent (2012). Water conserving landscapes can save significant amounts of water. Savings can be accomplished by landscaping design, plant selection, and watering practices. In some areas, studies have shown water savings ranging from 42 to 57 percent. These savings are significant, because water for urban landscaping is usually completely lost to the system.

Some of New Mexico's larger communities with utilities have been successful in implementing water conservation programs. The two most successful have been Santa Fe and Albuquerque. Santa Fe's use rate of gallons *per capita* per day (gpcd) use has dropped from 168 gpcd in 1995 to 107 gpcd in 2011. Albuquerque began its water conservation effort in 1995 when its water use was 252 gpcd; by 2011, that number had been reduced to 148 gpcd. The strategies employed by the Albuquerque area have resulted in the lowest water use since the early '80s when the population was about 56 percent of today's numbers.

Water used outdoors for landscaping is consumed by plants and evaporation. Outdoor water consumption is a large proportion of residential water use.

Gallons per Capita per Day

Measuring municipal conservation efforts has become increasingly important for several reasons. Conservation measures—such as retrofits of fixtures and landscaping—cost money. In order to evaluate and justify the costs, it is important to understand the results. Measurement of conservation progress has also become increasingly important, as the State Engineer has begun to condition permit approvals on meeting water conservation goals, based on the 1985 statutory amendments requiring that use not be contrary to water conservation. Finally, based on other statutory changes, water plans, and applications for funding now give greater emphasis to water conservation measures.

Municipal water use is measured as *gallons per capita per day* (gpcd), which is a common tool for water use reporting. Until recently, however, there was no standardized method for calculating gpcd in New Mexico. In 2009, the OSE developed a standardized method for calculating the measure. A number of cities and utilities now use the new standard, but it is not yet universal. The methodology will be used by the OSE to track municipal use over time and to aid in planning and projecting future per capita needs.

Agricultural Water Conservation

In 2008, the OSE quantified the amount of water withdrawn from New Mexico's water systems for irrigation agriculture as 77.86 percent of total withdrawals between 2000 and 2005. Because such a high percentage of water is withdrawn for agriculture, one might expect that significant resources would be committed to agricultural water conservation. Efforts to promote agricultural water conservation legislatively, however, have not been effective.

As concern about the adequacy of New Mexico's water supply emerged, considerable attention was focused initially on the state's forfeiture statutes. The forfeiture law is viewed as a "use it or lose it" principle and creates a disincentive to save water. New Mexico's constitution and water code base a water right on the beneficial use of water. To preserve a right, water must be put to a beneficial use and cannot be saved and used at a later time. If the water right holder fails to use water for at least four years, the water right is subject to forfeiture, a year after the State Engineer gives notice of non-user. The common law notion of abandonment may also occur. This mechanism results in the loss of a water right if water is not put to beneficial use for a much longer time. The long period of non-use raises the question of an intention to abandon the water right, which a user must disprove. The goal in either case is to free up water rights that are no longer exercised so that others may have access to water. In both cases, there has been a legal disincentive to save or conserve water since it must be continually used to preserve the water right.

As concern about the adequacy of New Mexico's water supply emerged, considerable attention was focused initially on the state's forfeiture statutes. The forfeiture law is viewed as a "use it or lose it" principle and creates a disincentive to save water.

In the agricultural sector, the "use it or lose it" doctrine creates some additional obstacles to water conservation. There have been several efforts to protect conserved agricultural water. In 1991, two statutes were amended to provide a limited exception to forfeiture for water assigned to State Engineer-approved conservation programs. In 2003, another amendment was made to the statute governing amounts allowed for agricultural water use. The amendment provides that conserved water from improved irrigation methods remained as part of an owner's water right.

While these amendments did eliminate the *legal* "use it or lose it" disincentive to conserve water, they did not clarify the complex *technical* issues related to agricultural water conservation or address financial incentives to promote water conservation. In 2007, a second amendment was enacted that was meant to create a financial incentive for farmers to conserve water by enabling them to sell (or change the location or use of) the conserved water provided that there would be no impairment of other water rights. A 2009 House Joint Memorial requested that NMSU conduct a study of agricultural water use methods that could make water available to other users. The study found that better irrigation methods improved the ability of crops to utilize water, thereby *increasing* water consumption and crop yields rather than *decreasing* water use, a result that confirmed what the OSE and others had been saying for some time. The concern is that if "conserved" water was not being "consumed" previously, and then it represents a new consumptive use and the overall consumptive use, or depletion of a stream, is increased.

Since only water that was *previously consumed and subsequently conserved* can be transferred to a new consumptive use, the opportunities for benefits to farmers if they conserve water without entirely ceasing irrigation are limited. Consequently, it may be that the best opportunities for agricultural water conservation may be in reducing the losses in

delivering water to the crop, rather than in reducing the actual amount of water consumed by the crop. However, even this could require distinguishing between water that was being "consumed" (evaporation, for example) and water that remains in the system by returning to a river or other water source.

To complicate matters, the benefits of agricultural water conservation vary depending on crop, soil types, and location. What may benefit one farmer may not benefit another. In addition, some agricultural water conservation measures may cause harm. For example, seepage from ditches in many acequia systems support cottonwood stands and wetlands which could be lost if seepage is reduced through conservation. In addition, agricultural water that is not consumptively used passes through the soils and recharges aquifers relied upon by others. These matters and others must be balanced to avoid unintended consequences.

The State has worked with the agricultural community to develop a list of conservation measures such as laser-leveling of fields, drip irrigation, and more effective head gates, and it has provided some limited funding to support these measures. Some incentives to conserve exist already. For those farmers relying on pumped groundwater, using less water results in reduced energy costs. In water-short years, prevention of incidental depletions enables the farmer to use that water for their crops. And, in a closed groundwater aquifer, increasing the longevity of the aquifer may be sufficient to justify more conservation rather than less.

But many conservation measures cost money. Even the cost of metering water use—a first step toward water conservation—may be too costly for many small farmers. Farmers argue that they should not be required to bear the financial burden of conservation measures without some benefit in return such as increased profits, tax incentives, or cost-sharing provisions.

In 1976, the U.S. Bureau of Reclamation issued the "New Mexico Water Resources Assessment for Planning Purposes." The report set forth the assumption that increased needs for municipal, industrial, and other uses would be met by the retirement of irrigated agriculture.

Water Conservation Issues

In 1976, the U.S. Bureau of Reclamation issued the "New Mexico Water Resources Assessment for Planning Purposes." The report set forth the assumption that increased needs for municipal, industrial, and other uses would be met by the retirement of irrigated agriculture. Indeed, it was common for past State Engineers to say that a reduction of 10 percent of agricultural water use would be enough to meet the growing demands of cities. In fact, municipalities and developers have been buying agricultural water rights for years.

That assumption is now being challenged on several fronts. People value both agriculture and the open space and the green belt that agriculture provides. More recently there is a growing interest in access to locally grown food and future food security. In addition, the idea that it would only take retirement of a relatively small amount of agricultural land to meet increasing demand may be an illusion in certain areas of the state.

Municipal water conservation makes a difference. Larger utilities can afford to make an investment in conservation measures, but municipal conservation is more problematic in smaller and rural communities because they have fewer resources. Implementing conservation measures costs money, although these measures are almost always less expensive than purchasing or otherwise acquiring new water supplies.

Municipal water conservation makes a difference.

Ag to Urban in the Middle Rio Grande—A Hypothetical Case

There are currently permits for about 230,000 acre-feet per year of groundwater pumping in the middle Rio Grande valley. These permits require offsets for the effects of pumping on the surface water in the Rio Grande. Offsets can and do consist of a combination of return flow credits, vested groundwater rights, San Juan Chama water, and acquired senior water rights (pre-1907 rights). Pumping impacts on the river lag behind the amounts of groundwater withdrawn. In general, the amount of the required offsets will increase long-term as groundwater pumping increases and as the effects of the pumping move to the river.

Current pumping under the permits is on the order of 110,000 acre-feet per year, although it is temporarily decreasing as the Albuquerque Bernalillo County Water Utility Authority brings its surface water treatment plant into full operation. When the full 230,000 acre-feet is pumped in sometime in the future, the offset required of the Water Authority, when needed, will consist of a combination of about 50 percent return flow credits and 50 percent purchased pre-1907 water rights. These water rights will come from 55,000 acres of pre-1907 water right lands, which will have to be fallowed. The Middle Rio Grande Conservancy District is the primary source area for pre-1907 water rights in the middle valley. Since the total amount of irrigated land within the district is between 50,000 and 65,000 acres, only about 10,000 acres will then retain water rights. That scenario assumes all the currently irrigated MRGCD lands are pre-1907 water right lands, which is not the case. In any case, the character of the middle Rio Grande valley would be significantly different than it appears today.

This hypothetical analysis assumes that vested rights and imported water will likely provide a portion of the required future offsets. It is presented here as an example of what could happen if the Albuquerque-Bernalillo County Water Authority had to resort to the purchase and fallowing of agricultural lands. However, the Water Authority has moved away from that strategy. Its future supply plans include reuse in many different forms, conservation, desalination, and aquifer storage and recovery, thus mitigating the effects on the river and the need for retired agricultural lands.

Many communities rely on groundwater. This reliance, combined with drought conditions, is causing water tables to fall, especially in areas where there is little or no recharge. Unless the rate of groundwater depletion is slowed, more and more areas will find themselves without access groundwater. These communities especially need support for water conservation measures. Even those communities with active conservation programs must protect groundwater supplies from further depletion in order to retain groundwater as a drought reserve.

Next Steps

There are a number of steps that New Mexico could take to promote water conservation. Information on water demand and supply is critical. Without measurements and data on water supply and demand, a community cannot know if the gap between supply and demand is a threat in the near future or decades off. Nor can a community justify the costs of promoting conservation without an adequate showing of the benefits. Funding for studies on local water supply and demand is necessary to make conservation programs possible.

Agricultural water conservation needs careful study and reflection. The OSE has cautioned that some practices viewed as viable water conservation efforts, such as drip irrigation, could actually allow plants to use more water and thereby increase depletions on the water system. Additional depletions can reduce the amounts available for senior water rights owners, interstate stream compact deliveries, and endangered species. Given current economic conditions, the greatest need is for funding and technical assistance where resources are inadequate or non-existent. In many communities, water conservation can only happen with state and federal financial support. The New Mexico legislature needs to support conservation efforts for small communities through funding.

By Consuelo Bokum (2011)
Latest Update by Katherine Yuhas (2013)

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Claudia Borchert, Water Resources Coordinator, Sangre de Cristo Water Division, City of Santa Fe.

Kevin Flanigan, Senior Hydrologist, N.M. Interstate Stream Commission.

John Longworth, Water Use and Conservation Bureau Chief, Office of the State Engineer.

Rolf Schmidt-Peterson, Rio Grande Basin Manager, N.M. Interstate Stream Commission

Katherine Yuhas, Water Conservation Officer, Albuquerque Bernalillo Water Utility Authority

"It's forgotten how to rain down here."

Dr. Phil King, Department of Civil Engineering, New Mexico State University

"I'll consider the drought to be over when Elephant Butte spills."

Gary Esslinger, Treasurer-Manager, Elephant Butte Irrigation District

Drought

New Mexico is renowned for its high deserts, mild climate, and abundant sunshine. Incidentally, these physical attributes, which make New Mexico so unique and beautiful, are also characteristic of a naturally dry environment. The state has been subjected to severe drought conditions in the past, alternating with times of uncharacteristically high supplies of moisture upon which its population has at times over-relied.

This article will provide various definitions of drought and a short history of drought in New Mexico; discuss impacts of drought on the state's human water user communities and environment; discuss in brief the priority call and water sharing agreements as tools for coping with insufficient water supplies; and examine some recent efforts to prepare more effectively for continuing drought conditions.

What is Drought?

Droughts are extended periods of time when an area experiences a shortage in water supply, traditionally associated with below-average precipitation alone, or in combination with above-average temperatures. There is no single standard definition of drought, and the severity of a drought is often a matter of perspective. For example, in times of reduced precipitation, farmers who rely on surface water may experience the painful consequences of water shortage long before farmers who rely on groundwater. Farmers with access to stored water can forestall the impacts of drought longer than those without. For urbanites, a drought may not become apparent until they are prohibited from watering their lawns or washing their cars.

Climate scientists characterize droughts in several ways. When there is less precipitation than average, it is referred to as a meteorological drought. When there is a shortage of surface water in streams and reservoirs, it is a hydrologic drought. When soils are too dry to support healthy crop production, it is an agricultural drought. Shortages of water associated with increased demands for water are known as socioeconomic droughts.

Droughts are extended periods of time when an area experiences a shortage in water supply, traditionally associated with below-average precipitation alone, or in combination with above-average temperatures.

New Mexico's Historic Droughts

Accurate rainfall measurements in New Mexico have been collected for the past century. However, analyses of the growth of tree rings have given us insight into levels of precipitation over the last 2,000 years. Because trees grow faster during periods of high precipitation, they leave wider rings during wet periods. This allows us to gauge with fair accuracy wet and dry periods of the past. Tree ring analyses indicate that New Mexico experienced significant prehistoric droughts between 300 and 500 A.D. and between 1400 and 1600 A.D. When compared to the older record of precipitation provided by tree ring analyses, it appears that the past two centuries in New Mexico have actually been remarkably wet.

The driest periods identified in New Mexico's recent history were 1576–1585; 1772–1781; 1623–1632; 1874–1883; 1893–1902; and 1950–1959.

The drought of the 1950s is still imprinted vividly on the memory of many New Mexicans. While New Mexico's average annual precipitation over the twentieth century was 13.5 inches, it ranged from less than twelve inches to less than nine inches during the 1950s (with less than nine inches in 1951, 1953, and 1956). Stream flow, groundwater levels, and artesian pressure reached record lows in much of the State. Farmers in the Middle Rio Grande recall that the ditches, the river, and even the drains were often dry.

The dust bowl conditions of the Great Plains in the 1930s illustrate that the impacts of drought may not only be exclusively attributable to water shortages but also to over-reliance on unusual periods of high supply. One of the wettest periods of the twentieth century was 1912–1921. These unusually wet conditions encouraged massive agricultural development across the Great Plains and the West, primarily utilizing deep plowing that resulted in the elimination of native grasses. When a moderate drought struck the southwestern Great Plains in the 1930s, the exposed soils of a hundred million acres of farmland eroded as they were left vulnerable to the effects of wind.

The dust bowl conditions of the Great Plains in the 1930s illustrate that the impacts of drought may not only be exclusively attributable to water shortages but also to over-reliance on unusual periods of high supply.

As in the dust bowl, the impacts of the drought of the 1950s in New Mexico were exacerbated by the rapid water supply development that took place during the wet period of the 1940s. As noted above, drought is often a matter of perspective. Creating reliance on the robust supplies during wet periods through rapidly increased development of water supplies and granting increased numbers of permits to develop water rights, increased the pain felt everywhere when supplies dwindled to below pre-wet period levels.

Impacts of Drought on New Mexico

Agricultural production suffers in times of drought. The loss of pasture requires ranchers to either sell off their livestock or pay for supplemental feed. This can be devastating to small ranchers and significantly reduce profit margins for large ranchers. Ranchers who rely on federal grazing allotments may be required to remove their cattle for several years to allow grasses to recover. This was the case with some U.S. Bureau of Land Management allotments in 2013. Overall in that year, most New Mexico ranchers reduced their herds by 25 percent.

The reductions in irrigation allotments due to a lack of adequate reservoir storage provide another dramatic illustration of the impacts of drought. In 2012, farmers in the lower Rio Grande were allotted a scant ten inches of water per acre, far short of the three to four acre-feet per acre of water needed to

irrigate New Mexico's iconic green chile, for example. In 2013, that allotment dropped to 3.5 inches. Most dramatically, farmers in the Arch-Hurley Conservancy District of the Tucumcari area in eastern New Mexico have only been able to irrigate during three of the past six years.

When surface water becomes scarce, farmers turn to groundwater. By the end of the 1950s, about 2,000 wells had been drilled to supplement the decreased surface water irrigation allotments of the drought. The resulting economic and environmental costs of drought for farmers were significant. Relying on groundwater pumping due to a lack of surface water can increase a farmer's annual expenditures by up to 15 percent. Additional expenditures can accrue if a farmer has to deepen existing wells or drill new ones. Moreover, the higher levels of salts and minerals in groundwater, when used on crops repeatedly and for extended periods of time, may also cause soil quality to diminish, thereby negatively affecting farming in the future.

The drought year of 2013 also illustrates the impact drought can have on municipalities. The Village of Magdalena saw its groundwater table drop twenty feet in the first half of the year. The Village was served by only one well, which became ineffective when the groundwater table dropped below the level of its pump. Water had to be trucked in to serve the 1,000 residents of Magdalena until a new well could be permitted and drilled. Other towns like Las Vegas and Hanover also came very close to severe water shortages.

Municipalities across New Mexico have responded to drought conditions by implementing water conservation programs. Residents of Albuquerque, Santa Fe, Las Cruces and many other towns have had their water use restricted in some manner. Whether it is through limitations on outside watering, increased fees for water usage to discourage excessive uses, or fines for wasting water, New Mexico's municipal water suppliers are showing real concern about preserving adequate water supplies.

The prior fourteen years were the driest in the last century for the Colorado River Basin, at a time when the water usage in the Upper Colorado Basin reached its highest levels ever.

The impacts of drought on our reservoirs, rivers, and forests are dramatic. In the fall of 2012, Elephant Butte Reservoir held only 5 percent of its full capacity in storage. By the fall of 2014, the levels only increased to 7 percent. Statewide, New Mexico reservoirs were at a mere 26 percent of their storage capacity as of fall 2014. El Vado Reservoir, which holds the irrigation water supply for the Middle Rio Grande, was at 27 percent capacity in September 2014. Brantley Reservoir on the Lower Pecos was at 37 percent. Landowners around Heron Reservoir watched the shoreline recede from their properties as the water level drew down to only 18 percent of full storage capacity.

The rivers that fill New Mexico's reservoirs are all experiencing significant impacts from drought. In 2012, stretches of the Pecos River ran dry for two-and-a-half months. The Rio Grande now regularly dries below Albuquerque, with long stretches going dry in 2011, 2012, and 2013. New Mexico relies heavily on imported water from the Colorado River. Unfortunately, supplies in the Colorado Basin are so low that the Bureau of Reclamation anticipates releasing 750,000 acre-feet less than normal from Lake Powell in 2014. The prior fourteen years were the driest in the last century for the Colorado River Basin, at a time when the water usage in the Upper Colorado Basin reached its highest levels ever.

New Mexico's forests have also taken a severe hit from the drought. The effects of drought on trees is often compounded by insect damage, as trees are more susceptible to insect infestations when they are already stressed by dry conditions. Between 2002 and 2004, bark beetles decimated huge areas of New Mexico piñon pine growth. At the

end of 2013, bark beetles surged in numbers again around Santa Fe.

Dry conditions have encouraged wildfires of epic proportions. In 2012, over 465 square miles of the Gila National Forest burned, and the Little Bear Fire burned 44,000 acres of the Lincoln National Forest. In 2013, the total acreage burned by wildfires was also remarkable: the Tres Lagunas fire in the Pecos Wilderness burned over 10,000 acres; the Thompson Ridge Fire in the Valles Caldera National Preserve burned almost 24,000 acres; and, the Silver Fire in the Gila area burned over 138,000 acres.

Just as drought exacerbates fire conditions, the impacts of fires can impair water supplies. The city of Alamogordo traditionally relied on Bonito Lake for 15 percent of its water supply. After the Little Bear fire in 2012, the lake filled with sediment that ran off of the burn scar. It is estimated that it may cost as much as $24 million to rehabilitate the lake. Likewise, the Upper Hondo Water Users have had to dig hundreds of yards of silt out of their ditches for the past three years after a fire in their watershed.

Prior Appropriation and Drought

Under the prior appropriation doctrine, water users with senior water rights are legally entitled to be served first in times of drought. Junior water right owners may receive little or no water. Senior water right owners may issue a priority call, that is, they may call for their water to be delivered before junior right owners are served. In 2013 there were two examples of a priority call being made. On the Pecos River, the Carlsbad Irrigation District asked the State Engineer to deliver its water before allowing junior water users upstream to divert their water. Because many of the upstream junior users rely on groundwater pumping, however, it was estimated that curtailing their diversions would not result in increased surface water reaching Carlsbad for years to come. Fortunately, several days of intense rains in the area during the late season restored surface supply levels dramatically.

Under the prior appropriation doctrine, water users with senior water rights are legally entitled to be served first in times of drought.

Another priority call was made in 2013 on the Rio Chama. The Upper Chama water users had achieved some agreement about sharing and rotating their scant water supplies. However, the situation became strained and in late July, the Acequia de Chamita filed a request for a priority call in federal court, asserting its 1600 priority date. Again, further escalation of the conflict was avoided when summer monsoons increased available water supplies.

In contrast to these rare priority calls, cooperative agreements to share water during times of shortage are the norm in New Mexico. These agreements range from large-scale interstate arrangements to local understandings. The seven states that share the Colorado River have developed Interim Guidelines for Lower Basin Shortages. These guidelines allow for coordinated operation of Lake Powell and Lake Mead to minimize shortages in the Lower Colorado Basin, while avoiding curtailment of users in the Upper Colorado Basin.

A smaller-scale, local example of a cooperative agreement that overcame the need for a priority call is found on the Rio Jemez. In 1996, the Pueblo of Jemez requested a federal court to enforce its senior water rights by shutting down upstream junior users. At the request of the court, the Pueblo and the five non-pueblo irrigation communities that make up the Rio Jemez Water Users developed an Irrigation Agreement. This flexible Agreement calls for rotations of water deliveries depending on available supplies and restricts non-pueblo pumping of groundwater. A water master enforces the Agreement. The Agreement has the force of law as it was incorporated as a stipulated order in the ongoing adjudication of the Rio Jemez water rights.

Planning for Drought

In recent times, efforts have been made by New Mexico's executive and legislative branches to prepare for water shortages. In 1996, Governor Gary Johnson established the New Mexico Drought Task Force. Governors Richardson and Martinez maintained the Task Force, which has produced guidance for New Mexico's government agencies. In 2002, the Task Force produced the New Mexico Drought Plan and updated the Plan in 2006. Again in 2008, the Drought Task Force provided a set of recommendations to then Governor Richardson. Some of the actions recommended in these documents included the following (grouped together here by the entities responsible for implementing the recommendations):

The State of New Mexico and All Political Subdivisions

- Adopt long-term, comprehensive, and integrated water planning;
- Consult and negotiate with Native American tribes;
- Complete ongoing water right adjudications and prioritize adjudication of all basins;
- Upgrade and develop water infrastructure;
- Promote conservation and reuse of water;
- Promote healthy watersheds and healthy river ecosystems; and
- Invest in technical resources and position New Mexico as a global leader in water, energy, and agricultural research and technology.

Office of the State Engineer/ Interstate Stream Commission

- Enhance meteorological, snow, and streamflow monitoring capacity;
- Continue state and regional water planning;
- Provide technical assistance with water leak detection;
- Promote best practices for water conservation;
- Maintain an open Elephant Butte Pilot Channel;
- Continue operation of the Middle Rio Grande Conservancy District Water Management Decision Support System;
- Expand water conservation education and outreach;
- Lead efforts to create guidelines for more efficient water use;
- Support the Acequia Re-loan Program;
- Support the San Juan River Administration Agreements;
- Support the Metering Re-loan Program; and
- Support Middle Rio Grande Endangered Species Act River Operations Optimization.

Energy Minerals and Natural Resources Department

- Continue the Green Power Purchase initiatives;
- Diversify recreational opportunities and other programs that will appeal to visitors even in drought conditions;
- Pre-position resources necessary for fire suppression; and
- Conduct community wildfire planning.

Tourism Department

- Educate potential visitors and residents about recreations opportunities and combat sensational news reports that may negatively impact tourism; and
- Continue to hold an annual spring briefing with State Parks to present updates on drought impacts to tourist activities.

New Mexico Department of Agriculture

- Coordinate information exchange with the U.S. Department of Agriculture; and
- Assist agricultural producers with planning and preparing for drought.

New Mexico Finance Authority

- Provide financial and administrative support to assist with drought relief.

The Pueblo of Zuni has also engaged in drought planning. Its impressive 2001 Drought Contingency Plan ("Zuni Plan") provides good descriptions of concrete drought preparation actions. Despite its traditional reluctance to discuss natural disasters, the Pueblo, after the drought of 1996, developed specific action items to address drought in the future, noting that its traditional way is to deal with drought using actions rather than words. The potential impacts of drought on seven water use areas were analyzed: municipal, domestic, farm, ranch, fish and wildlife, recreation, construction, and fire suppression. Specific actions to mitigate the impacts of drought on all of these sectors of use are listed in the Zuni Plan. The Zuni Plan also specifically identifies which entities within the Pueblo are responsible for implementing the Plan recommendations. It further identifies external partners who can assist with implementation. Finally, the Zuni Plan includes budget estimates for each of these items and identifies the priorities for funding.

Expecting Drought

At the end of 2013, the Bureau of Reclamation released its Upper Rio Grande Impact Assessment, which assessed impacts of projected temperature increases and changes in precipitation and snowmelt patterns. The anticipated increases in temperature and evaporation, combined with decreased stream flow and snowpack, are projected to result in a one-third decrease in water available in the Rio Grande by the end of the century. These projections are bolstered by the ongoing increases in temperature in the Rio Grande Basin, which are rising at the fastest rate in the last 10,000 years.

To prepare for future droughts, Governor Martinez made a significant water-related proposal for the 2014 legislative session. She proposed that 60 percent of the available capital outlay funding (potentially $112 million) be dedicated to water infrastructure funding and suggested that the money be dedicated to water infrastructure, watershed restoration, and dam repair. In announcing this funding proposal, she wisely observed, "While we cannot dictate the duration or magnitude of these [drought] crises, we can and must dictate our response."

Fall 2014 Update

The start of 2014 was an extremely dry time in New Mexico and one of the driest in recorded history. Fortunately, the 2014 monsoon season reversed the below-average precipitation trend with above-average precipitation beginning in July and continuing through August. September was a particularly impressive month for the southern part of the state with robust precipitation levels. Unfortunately, the northern portion of New Mexico did not receive the same improvement in precipitation. Although there should be celebration with the above-average levels from the monsoon, New Mexico is still in a significant water crisis with long-term water conservation issues that need to be addressed immediately.

By Adrian Oglesby (2014)

The anticipated increases in temperature and evaporation, combined with decreased stream flow and snowpack, are projected to result in a one-third decrease in water available in the Rio Grande by the end of the century.

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Priority Administration

Background

Since the turn of the twenty first century, drought conditions have frequently stricken much of New Mexico. Such intervals of extreme dryness have been a permanent, recurring feature of the state's climate for at least two thousand years, according to tree ring data and other scientific evidence. Some of these past droughts lasted for decades, exceeding in severity the Dust Bowl of the 1930s and the great New Mexico drought of the 1950s. Today, climate change models indicate that the Southwest will likely become even hotter, potentially making future droughts in New Mexico more extreme. Managing water shortages promises to become even more critical.

Across the west, water users and state officials have embraced a legal doctrine known as *priority administration*[1] as a tool for dealing with shortages. This process allows state officials to order a temporary reduction in water diversions for some uses so that other water uses can be supplied with the water that is available. However, state authorities seldom use this tool in view of the legal, economic, and political conflicts that would likely result. This article will describe how priority administration works, in theory and in practice. After describing priority administration as a general legal concept, the article then illustrates its practical role in four specific stream systems: the Cimarron River, the Mimbres River, the San Juan Chama Project, and the Pecos River.

The Priority Administration Process

According to the Office of the State Engineer (State Engineer or OSE), priority administration is "the temporary curtailment of junior water rights in times of shortage, so that more senior water rights can be served by the available water supply."[2] Under the prior appropriation system, the rank of a water right within a stream system

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1 It is important to note that many in New Mexico water right holders, such as those in acequias and other traditional communities, have historically found other means to deal with water shortages, such as sharing of available water. This paper, however, specifically addresses priority administration.

2 See New Mexico Office of the State Engineer, FREQUENTLY ASKED QUESTIONS 5. What is "priority administration?" **http://www.ose.state.nm.us/faq_index.html#5**

Priority administration begins when a senior water right owner runs short of water and files a request with the State Engineer to issue a *call on the river* that is, a *priority call*.

is based on its priority date. This date is based on when that a person *begins the process* of putting water to a beneficial use. Examples of beneficial use include using water for agricultural, domestic or commercial purposes. The details of how the priority date is determined vary. (*see below)* But in all cases, the earlier or *senior* priority right has the better legal right to water during shortages. This is the principle of "first in time, first in right." When this principle is applied, the right with the older priority gets its full amount, before any water goes to newer or *junior* rights. If water still remains, the next most senior right gets its full amount, and so on. This distribution process continues until no water is left.

Priority administration begins when a senior water right owner runs short of water and files a request with the State Engineer to issue a *call on the river* that is, a *priority call*. This means that the senior user is requesting that the State Engineer order junior users on the stream or in the basin to stop diverting water until sufficient water has reached the senior. If the request is granted, the Engineer contacts junior right owners and orders the necessary curtailment of diversions. The goal is to ensure that senior water rights get their full water entitlement, as required under the New Mexico Constitution.[3] Thus, for example, under a priority call, a rancher with a priority date of 1899 would get all her water during a shortage before an alfalfa farmer with a priority date of 1917 gets any of his. The State Engineer may continue such curtailment for the duration of the shortage. A priority call does not mean that juniors 'lose' their water rights, but rather that they will be required to cut back during the crisis.

Determining Priority Dates: Before priority administration can be implemented, all priority dates within a stream system must be identified. A court decree of water rights provides the most secure record of priority dates. In New Mexico a water rights adjudication is a court process which results in a decree that legally determines the validity of all water rights and their elements (*e.g.,* priority date, place of use, amount of use) in a stream system. State of New Mexico lawyers pursue the adjudication and the staff of the State Engineer collects and compiles the information about the water rights.

The adjudication process opens with the OSE conducting an inventory of all water rights in the system known as a *hydrographic survey*. The survey compiles all public information and results of field data collection for each right into a report. Later, the OSE mails an offer[4] based on the survey to each water right claimant. The offer describes the proposed elements of each water right as it appears in the public record. Each claimant may negotiate with the State over the elements described by the offer. If they are able to reach an agreement, the court enters the order and the matter is resolved as between the claimant(s) and the State. If no agreement is reached, the court will refer the claimant(s) and State to mediation or the matter is set for trial. An order of the court will finally resolve the water right as between the claimant (s) and the State. Following the resolution of all water rights, the court will hold an *inter se* proceeding in which any claimant can object to the rights of any other claimant. In this way, the matter is resolved as among the claimant(s), the State and the community in which the right is located. The adjudication

3 N.M. Const. Art XVI, Sec. 2, "… Priority of appropriation shall give the better right."

4 The term 'offer' is used generally in this paper. Other document titles that serve that purpose include 'consent order', 'subfile order', 'stipulated subfile order', 'order adjudicating water right' or something similar. The term used depends on the court conducting the adjudication and may vary over time.

process ends with the court issuing a final decree establishing the elements of each water right in the stream system, including all priority dates.

The *basis* for the determination of a priority date depends in part on whether the State Engineer had jurisdiction over water use in the area at the time the water right was initiated. The question of jurisdiction is different for surface water rights and groundwater rights. For surface water rights, the State Engineer has had jurisdiction throughout New Mexico since 1907, when the then-territorial legislature enacted the New Mexico water code. This code requires that someone wanting to make a new surface water diversion file a permit application with the State Engineer. If the application is granted, the priority date of the right will be the date of filing that application. For groundwater rights, the State Engineer has had jurisdiction over a groundwater basin from the date that he formally declared its boundaries. Following that date, the Engineer requires a permit application for all new uses. Again the priority date will be the date the application was filed with the State Engineer. As of 2006, all basins have been declared.

If a water right predates these two types of State Engineer jurisdiction, the priority date can be more difficult to determine. These dates are based upon reliable evidence of intent to put water to a beneficial use. Intent can be inferred from a) physical actions reported in affidavits of people with actual knowledge of a diversion, b) evidence of surveys, construction, reports or photographs, or c) other evidence of notice to other appropriators, such as the posting signs. If there is a disagreement about the whether the evidence is enough to prove a water right element, the adjudication court will rule on the matter.

For more information, please see the "Adjudication" chapter in this edition of *Water Maters!.*

When an adjudication is completed, the final decree allows priority administration to proceed in a relatively straightforward manner because the priority dates are set. The adjudication process, however, is lengthy and often requires several decades to finish. To date, only a few of New Mexico's stream systems have been fully adjudicated. This situation complicates priority administration. Where priority dates have not been formally recognized by a court, there is less certainty about whether they are correct. Correct priority dates are important to knowing whether a water use is senior or junior to another water use. For many years, the State Engineer took a conservative approach and declined to conduct a priority call without an adjudicated stream system.

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Priority Administration Involving Non-Adjudicated Water Rights: In 2003, the New Mexico legislature passed a statute which recognized that the State Engineer needed clear authority to administer priorities before an adjudication had been completed.[5] The Engineer then developed rules known as the Active Water Resource Management (AWRM) regulations.[6] Under the AWRM regulations, the Engineer can use priority dates of water rights based on other evidence of water use. The regulations list a hierarchy of evidence for

5 NMSA 1978, Section 72-2-9.1. Priority administration; expedited water marketing and leasing; state engineer.

6 Active Water Resource Management, Title 19, Ch. 24, Pt. 13.

On paper, a priority call serves as a powerful mechanism for protecting senior rights through the allocation of water in times of shortage. However, the State Engineer has seldom conducted a priority call.

establishing priority dates. This evidence, ranked from most to least authoritative, includes:

1. A final decree from an adjudication court
2. A sub-file order in an adjudication
3. An offer of judgment from the State in an adjudication
4. A hydrographic survey prepared by the State Engineer
5. A license issued by the State Engineer
6. A permit from the State Engineer
7. The State Engineer's own assessment of historic beneficial use, based on "best available evidence."

Where the determination is based on documents that carry less weight than a decree, the determination is provisional, pending a full adjudication of the entire stream system.

Once the final list of water rights and their priority dates in a stream system is assembled, the State Engineer publishes the list. Water right holders may appeal their priority date, or any other element of the water right, to the State Engineer in the first instance and, barring satisfaction, then to a state district court. The Engineer can implement priority administration, even if a court challenge to an AWRM-determined priority date is underway.

For more information, please see "Active Water Resource Management" chapter in this edition of *Water Matters!*.

Priority Administration in Practice

Issues and uncertainties. On paper, a priority call serves as a powerful mechanism for protecting senior rights through the allocation of water in times of shortage. However, the State Engineer has seldom conducted a priority call. State officials and water right owners often mention such action as a possibility when a water shortage strikes a New Mexico stream system. Water right owners have occasionally asked the State Engineer to implement a call—or sought court action to compel one. To date, the Engineer has usually avoided such a course in favor of alternatives, such as water sharing, or because it rained. Legal uncertainty partially explains this long time hesitancy. Additionally, state and federal governments have been able to augment water supplies with reservoir storage reserves or groundwater pumping during much of the twentieth century. These supplies, or unanticipated rain, have made curtailment of junior uses unnecessary for decades.

Alternatives to priority administration have been favored over curtailment for a variety of social, political and economic reasons. There are community conflicts when neighbors wrestle the prospect of some members receiving water and other receiving little or none. Agricultural users have strong political support in the legislature and beyond. Since agricultural interests with older priority dates hold legal rights to most of New Mexico's available water, a priority call would likely pit seniors in sparsely populated rural areas against New Mexico's junior and heavily populated urban areas.[7] Thus, in the event of a priority call, agricultural interests may obtain curtailment of water delivery to cities, towns, commercial, and industrial uses. If a priority call curtails water use among these juniors, serious regional economic effects may be felt. All these reasons will lead to protracted legal strife. Thus, state water managers have long viewed a priority call as a tool of last resort.

7 In 2010, agriculture accounted for 78.62% of all water withdrawals in the state while municipalities, business, and industry accounted for about 15% of withdrawals.

New Mexico courts have supported this position by recognizing the general flexibility of the State Engineer in the administration of priority dates. Critics have pointed to Article XVI, section 2 of the state constitution, which seemingly enshrines the first in time, first in right principle by declaring that "[p]riority of appropriation shall give the better right." The same article, however, states that appropriation must be done "in accordance with the laws of the state." The New Mexico Supreme Court cited this language, in *Tri-State Generation and Transmission Association v. D'Antonio*, as broadly empowering the legislature to delegate administration of water resources to the State Engineer. While upholding AWRM as constitutional, the Court cautioned that the delegation of this authority to the State Engineer does not allow the agency or the legislature to regard priority dates of senior water rights as "nothing more than an aspiration, subject to legislative whim and discretion." Nothing in the *Tri-State* decision or other cases, however, has found a general duty of the State Engineer to issue a priority call when a senior files a request.

General principles of prior appropriation in the western states have supported at least some flexibility in administering priority dates. In many states, for example, if a senior demands a priority call but officials find that the senior doesn't need the water or has not been using it, the officials may decline to enforce the senior's priority date, in the name of preventing waste. Similarly, if state authorities reasonably conclude that a priority call would fail to result in any water actually reaching the senior's diversion structure, they can decline to issue the call. This situation is known as a *futile call* and it allows state officials to refuse to implement priority administration, unless and until stream conditions change. New Mexico law does not define this term, but other western states have developed legal definitions. None-the-less, New Mexico water officials have publicly invoked this concept. For example in 2013, the Carlsbad Irrigation District in southeastern New Mexico filed a formal request with the State Engineer for priority call in the drought-stricken Pecos River stream system. This priority call would have required curtailment of upstream groundwater pumping, which in CID's view, prevented the flow of the river to reach district diversion structures. Those parties who opposed this action, however, maintained that curtailment would result in a futile call, because the system's response to a reduction in groundwater pumping would take many years before water would actually flow to the senior's As the State Engineer worked on addressing the crisis, it rained, a lot, the reservoirs filled, and the need for a call was removed.

The AWRM regulations allow communities and others to develop alternatives to priority administration. These are known as *alternative administration*. This type of administration includes activities such as water rotation, shortage sharing, and forbearance. Water rotation involves water users taking turns on a schedule to use a share limited supply. Shortage sharing involves reductions among water users so that all may receive a portion of a limited supply. Forbearance involves certain water users agreeing to not use water temporarily so that others may have access to more. These tools are characterized by the agreement of water right users, including seniors, to forego full use of the amount of water to which they are legally entitled.

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The remainder of this paper will examine this search for alternatives in specific New

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Mexico stream systems. Thus, although the topic is priority administration, the discussion that follows will focus on planning for and avoiding a process that in practice has rarely been carried out.

The Cimarron River Stream System. The Cimarron River of northeastern New Mexico flows from Eagle Nest Lake in the Sangre de Christo Mountains to just below the town of Springer, 60 miles to the east, where it joins the Canadian River. A number of large water users depend on the Cimarron, including irrigation districts, ranches, the city of Raton, and numerous small landowners. Eagle Nest Lake is a large, man-made reservoir with a capacity of almost 70,000 acre-feet of water. This reservoir is key to managing the water supply in the Cimarron stream system. Many water right owners, including the city of Raton, have storage rights in the reservoir. The Cimarron water master oversees the release and delivery of water from Eagle Nest Reservoir to water right owners. This stream system is one of two under full priority administration. The other system is the Costilla Creek.

The Cimarron River stream system was fully adjudicated by final decree on December 20, 1929. The decree adjudicated about 40,000 acre-feet. On June 1, 1932, the court relinquished jurisdiction for management purposes to the State Engineer. Any priority administration in the area can proceed on the basis of established priority dates. The stream system is fully appropriated and no new diversions are allowed. The State Engineer's district supervisor and water master employ alternative administration strategies allowed under the AWRM regulations. This approach promotes the negotiation and implementation of cooperative water sharing agreements among water right owners in a stream system. Thus, seniors and juniors can meet the challenges of water shortages and minimize the adverse effects of a priority call.

However, even where a cooperative arrangement has been created, a senior water right owner may still decide to request a priority call from the State Engineer. In such a case, the water master's manual for the Cimarron describes how the State Engineer's Office would respond, assuming that river conditions did not result in a futile call. A priority call would begin when a senior water right owner demanded that the water master deliver sufficient water to meet the senior's need. The senior must give 24 hours advance notice of the requested delivery.

However, the water master would not necessarily cut off a junior without warning. The master can adjust the timing of priority call to minimize the effects on juniors, if possible. The water master manual requires OSE staff make contact with the junior so s/he has time to shut the headgate that controls water flowing onto the property. The water master can ask whether the junior only needs one or two more days to finish the current use of water. If the answer is yes, the water master can ask the senior if such a delay would unduly interfere with the senior operation. If not, the water master can allow the junior to complete the current use. After that, delivery to the senior takes place. In practice, this accommodation, however, may not be possible.

Given the problems a priority call can generate, the OSE district supervisor and water master in the Cimarron strive to maintain good relations with water right owners. The goal is to promote cooperation that can avert the need for priority administration entirely.

The Mimbres River Stream System. The Mimbres River flows for 91 miles in southwestern New Mexico, from the Black

Range to a basin just east of Deming. Farmers irrigate about 80,000 acres using surface and groundwater. The State Engineer closed the Mimbres to any new requests to appropriate water in 1972. A 6th Judicial District Court completed the adjudication of Mimbres water rights in 1993. In 2005, the State Engineer declared the Upper Mimbres Water Master District. In 2006, the Engineer published the Water Master Field Manual which included sections on priority and alternative administration. The State Engineer has identified the Mimbres as a priority basin for AWRM implementation.

Historically, accurate measuring devices for stream flows and the water diversions have not been in place in the Mimbres stream system. In 2009, irrigators began installing meters in the middle and lower Mimbres basin. In 2013, the State Engineer ordered all Upper Mimbres ditches to install meters at their diversion headgates. Meters are necessary for measuring how much water farmers divert from the river and groundwater basin. Measuring water use is intended to help prevent a) illegal diversions, either beyond the adjudicated amount or without benefit of a water right, and b) wasteful water use practices. Keeping water use within legal limits reduces the need for priority administration.

Priority administration, however, requires more than accurate water measurement at the senior's headgate. This point is illustrated by a legal battle over priority administration in the Mimbres filed over a decade ago. The San Lorenzo Community Ditch Association has the most senior rights on the stream system and has had its headgates metered since the early 2000's. During the summer of 2003, the Association could not deliver enough water to meet its members' needs. The Association maintained that junior diversions upstream caused the shortage, although it admitted that the shortage could have been caused by drought. In September of 2003, the Association filed with the District Court of Luna County for a preliminary and permanent injunction against upstream juniors to stop their diversions and an order requiring metering at the upstream headgates.

Under the court's order, the State Engineer met with the parties to suggest alternatives, such as rotation of water use among water right owners. The parties were not able to reach an agreement so the water master ordered a rotation schedule in April of 2004. When San Lorenzo did not follow the schedule, the water master asked the court for a hearing to *show cause* (to explain) to justify its actions. Before the hearing could take place, the Association filed a petition asking the district court to order the State Engineer to administer rights by priority. The district court issued the *writ of mandamus*.[8] After a hearing, the court entered an order that concluded that priority administration would require a greater understanding of the water system through "measurements or estimation [of] flows, demands, diversions, and returns".[9] The court then canceled the writ.

Priority administration, however, requires more than accurate water measurement at the senior's headgate,

The Association appealed the district court's decision to the New Mexico Court of Appeals. Responding to the allegations, the State Engineer argued he needed more information than just the amount of water required by the senior before he could curtail juniors. Curtaining juniors required knowing how much water was in the river,

8 A *writ of mandamus* is a court order to a government official requiring the official to properly carry out her/his official duties.

9 *Mimbres Valley Irrigation Co. v. Salopek*, 2006-NMCA-093, 140 P.3d 1117, quoting from the district court's opinion.

In a time of shortage, imported water cushions the effect of drought and threat of a call on a junior who has contracted for that water.

how much was being diverted, and how much water the association members needed to irrigate particular lands and crops. The Engineer reiterated that "effective administration will require a more detailed analysis of the entire Mimbres surface water system, including more comprehensive measurement or estimation of flows, demands, diversions, and returns." Finally Engineer stated that the water master needed access to the Associations metering devices, which the Association refused to grant. The Court of Appeals remanded the case on a procedural issue to the district court. A decade later, the state is requiring the installation of measuring devices to make priority administration a viable framework for managing water.

The case of *Bounds v. State, ex rel. D'Antonio* focused on priority administration in the Mimbres and domestic wells. The New Mexico Supreme Court decided the case in July of 2013. A Mimbres basin rancher challenged, as unconstitutional, a state domestic well statute that makes the issuance of domestic well permits mandatory. Under the statute, the State Engineer grants the permit without requiring notice, consideration of the availability of water, or the opportunity for others to object. The State Engineer closed the basin in 1972 stating that the water was fully appropriated.

The rancher argued that if the basin was closed because the water was fully appropriated, the mandatory issuance of domestic permits results in new wells taking water that should have been available to senior water right owners. Thus according the rancher, the basic principles of the prior appropriation system are violated. The New Mexico Supreme Court disagreed, noting that the new well permits were still subject to priority administration in times of shortage even though the State Engineer issues them automatically. A well permit, in other words, does not guarantee the use of groundwater or exempt the owner from having his diversion curtailed to protect senior rights.

The San Juan Chama Project—Priority Administration and Imported Water. Priority calls apply only to water that naturally occurs in a stream system. They do not apply to imported water. Water can be imported from one stream system into another through pumps, canals, tunnels, and pipelines. Imported water is subject to priority administration only in its basin of origin, not in its basin of use.

The San Juan Chama Project illustrates this circumstance. New Mexico is entitled to a share of the Colorado River under the Colorado River Compacts. Infrastructure built by the U.S. Bureau of Reclamation for the Project diverts water from the San Juan River, a tributary of the Colorado River. The water is transported across the Continental Divide and dumped into the Rio Chama. It is stored in New Mexico reservoirs and released as needed for entities that have contracted for it. Once released from the reservoirs, the water travels down the Chama, along with the river's natural flows to the Rio Grande.

In a time of shortage, imported water cushions the effect of drought and threat of a call on a junior who has contracted for that water. Contract water is not considered when any senior water right owner requests a call on the natural flows of a river. Seniors are legally obligated to let the imported water flow past their points of diversion. Contractors for San Juan Chama Project water include the city of Albuquerque and a number of other towns, cities, and conservancy districts in northern New Mexico. These contracts are governed by federal Reclamation law and various federal statutes which authorized the San Juan Chama Project. Several factors, including the location of some of the contractors above

the point at which the Chama joins the Rio Grande, make the accounting for this water very complex. The priority dates that affect San Juan Chama Project water are found in the interstate compacts governing its stream system of origin, the Colorado River system.

There are some physical barriers to delivery of the San Juan Chama Project water. New Mexico's latest drought dramatically reduced native water flow in the Rio Chama. Thus, much of the stream flow consists of imported San Juan Chama Project water. The Chama river channel absorbed some of the Project water and replenished the underlying aquifer. This situation complicates the water accounting for the contractors because the contracts did not contemplate depletions by the natural system. The imported water also creates some social problems. Although farmers in the lower Rio Chama valley own water rights dating back centuries, they cannot access the imported water flowing to the Rio Grande. It is hard to watch that water pass their headgates when their fields are thirsty.

The State Engineer and the New Mexico Interstate Stream Commission have worked with local irrigators to fashion cooperative agreements for sharing the natural flows of the Rio Chama. In the summer of 2013, for example, the Rio Chama Acequia Association agreed to implement rotating periods of reduced diversions among its members. The result has been to 'stretch' the available supplies so that all the users in the area get access to at least some water. This cooperation has so far averted a priority call by the most senior users.

The Pecos River Stream System—Priority Administration and Interstate Compacts. The Pecos River Compact illustrates another means by which distant downstream water use can affect the application of priority administration. The Compact imposes a federal legal obligation on New Mexico authorities to deliver water to Texas. To meet this obligation, New Mexico must limit water use within the state. State officials could impose priority administration to meet New Mexico's Compact obligations, but work hard to find alternatives to such action.

The history of deliveries on the Pecos River has long generated friction between water right owners in New Mexico, where the river originates, and in Texas, where the river empties into the Rio Grande.

Attempts to resolve protracted disputes between the sister states led to the Pecos River Compact of 1948. Under the Compact, New Mexico must ensure that a certain amount of water is delivered annually to the Texas state line. New Mexico shall not "deplete by man's activities" the amount of river flow into Texas that prevailed in the year 1947. This "1947 condition," as the Compact called it, led to disagreements between the two states over how to calculate it. In 1974, Texas sued New Mexico in the U.S. Supreme Court for failing to abide by the Compact.

The Court decided the case in 1988, finding that New Mexico had in fact violated its delivery obligations. In its amended decree imposing remedies, the Court found that New Mexico had under-delivered water to Texas at an average annual rate of about 10,000 acre-feet over the previous 34 years. For causing this economic loss the Court fined New Mexico $14 million and ordered the state to comply with the Compact in the future, through actual water deliveries. The annual delivery amount, the Court decided, would be calculated by a method that Texas had proposed during the litigation. The Court ordered New Mexico to make up any

The history of deliveries on the Pecos River has long generated friction between water right owners in New Mexico, where the river originates, and in Texas, where the river empties into the Rio Grande.

future shortfalls in delivery to Texas within a specified time period (essentially, within fifteen months of the end of the year in which the shortfall occurred).

New Mexico has struggled since 1988 to meet these obligations. Following the Supreme Court amended decree, the state legislature approved what are known as the Pecos compliance statutes, NMSA 1978 §§ 72-1-2.2, 72-1.2.4 and 72.1-2.6. These measures provided roughly $30 million in funding for the Interstate Stream Commission to lease or purchase water rights in the Pecos River stream system and retire them, in order reduce New Mexico's demand on the river and to assure sufficient flows for its Compact obligations. These measures were effective for much of the decade following the Supreme Court decree, but in the early 2000s dry conditions led to a decline in New Mexico's annual deliveries, threatening its Compact compliance.

One possible response to the decline would have been priority administration. A priority call by the State Engineer would have curtailed water use by New Mexico junior water right owners along the Pecos. At the time, however, the Pecos was only partly adjudicated, and the statute that would lead to AWRM as an alternate means to enforce priority dates did not yet exist. In addition, the hydrology of the Pecos seemed likely to result in a futile call. Any curtailment of junior water rights would mainly impact owners who pump groundwater in the Roswell area. A halt in pumping would eventually restore flow in the Pecos River, because the river and groundwater sources are hydrologically connected. Such restoration of river flow, however, would take many years. Because of this long delay, the State Engineer's office has maintained that a priority call against groundwater pumping to restore Pecos River flow would in fact be a futile call.

Yet the urgency of the Pecos situation seemed to require some kind of action. Failing to meet New Mexico's obligations under the Pecos Compact would likely bring further sanctions from the U.S. Supreme Court with uncertain consequences for New Mexico water users. For example, the federal government might take over administration of the river, a prospect that water right owners and state officials in western states have long viewed as disastrous.

The legislature responded in 2003 by enacting the statute, discussed earlier, empowering the State Engineer to implement the regulations that would become known as Active Water Resource Management or AWRM. The statute's preamble set forth a perceived need for giving the Engineer greater authority to oversee water use. It noted that "the adjudication process is slow, the need for water administration is urgent, [and] compliance with interstate compacts is imperative." Under this statute, the Engineer developed statewide AWRM regulations and began work on basin specific regulations. Supporters of AWRM saw the legislation as granting *new* authority for the Engineer to pursue priority administration in the absence of an adjudication decree. Critics of AWRM contend that legislators and their constituents had no intention of endorsing such broad new authority for priority administration. Critics challenged the regulations in the *Tri-State* case in 20*. In 2013* the New Mexico Supreme Court upheld the State Engineer's authority to create the AWRM regulations and to conduct priority administration under them.

Even as the legislature enacted this law, however, it also pursued alternatives that would make priority administration in the Pecos less likely. In 2002, the legislature conditionally approved an agreement among southern New Mexico industries, irrigation districts, and municipalities for further purchase and retirement of irrigation rights to help assure Pecos River Compact Compliance. This agreement also provided, if necessary, for pumping of groundwater into the Pecos to augment its flows. The Interstate Stream Commission developed the Seven Rivers well field to meet this purpose.

The legislature added further conditions, however, beyond those the parties had negotiated. Most importantly, the parties were required to adjudicate or settle major water rights contested by the Carlsbad Irrigation District, the Pecos Valley Artesian Conservancy District, and Reclamation. The parties, along with the State Engineer and the Interstate Stream Commission, reached a settlement signing it in March of 2003. This agreement is known as the Pecos River Settlement Agreement.

State officials have praised the Settlement as crucial for avoiding priority administration to comply with the Pecos Compact. The State Engineer has drafted specific regulations to implement AWRM in the Lower Pecos, including priority administration if necessary. Any such action would be subject to the Settlement Agreement, which limits the ability of the Carlsbad Irrigation District or Reclamation to make a priority call. State water resource managers hope that the settlement terms and the alternatives to priority administration included within AWRM will avert any curtailing of junior water right owners to meet New Mexico's water delivery obligations to Texas.

Conclusion

Priority administration is central to applying the principle of first in time, first in right. The actual use of priority administration in practice, however, is subject to the discretion and flexibility of decision-makers, including state officials and water right owners. New Mexico's experience to date has shown that alternatives to priority administration can be implemented, making curtailment of the diversions of junior water right owners a last resort. A major question for the future will be how to preserve this flexibility, as climate change and a growing population continue to threaten additional pressure on available supplies.

By Ed Merta (2014)

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Christopher Lindeen, Esq., Office of the State Engineer

Active Water Resource Management

> "[I]f the State Engineer does not have some kind of ability to regulate water rights in the absence of a full adjudication…you might as well pack your bags…and have chaos in the state in terms of how you administer water rights."
>
> N.M. State Engineer Eluid Martinez (1991–1994)

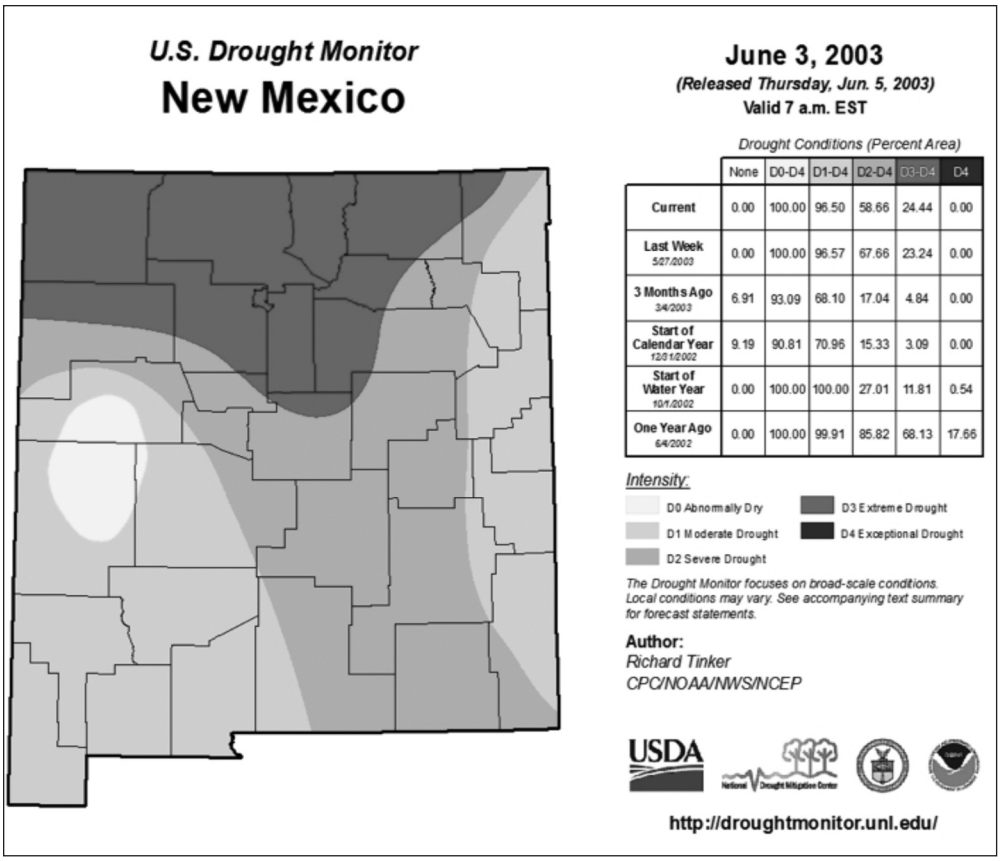
For decades, most of the waters of the State of New Mexico have been the subject of water rights adjudications to establish all the water rights. Stream systems and sub-basins geographically define the adjudications. There are twelve active cases. However, complete adjudication of all New Mexico water rights is still many years away. Meanwhile, water use in the state has evolved. New water users increasingly look to acquire existing water rights rather than developing new rights. Decisions on administration, distribution, and redistribution of water have to be made.

New Mexico experienced a particularly dry year in 2002 and another in 2013. In 2002, every county in the state was declared a drought disaster area by the USDA; irrigators received a fraction of their normal water allotments and municipal water systems struggled to maintain their supplies.

Throughout that year, the interim Water and Natural Resources Committee heard testimony from stakeholders, ranging from the Water Trust Board and the State Engineer to 1000 Friends of New Mexico and Defenders of Wildlife, that the lack of a final adjudication of water rights was hindering the negotiation and implementation of solutions to water shortage problems. The water administration problems were wide-ranging, including delivering Pecos River water to Texas in compliance with the Pecos River Compact; structuring an agreement with the Navajo Nation; and, on the Rio Grande, delivering to irrigators and maintaining habitat for the silvery minnow in compliance with the Endangered Species Act.

It was widely held, though not unanimously, that the State Engineer needed greater authority to administer water rights until the courts' adjudication of rights was complete. In 2013, most of the state experienced extreme drought. A call for priority administration was made on the Pecos River, surface and groundwater water shortages were felt throughout the state, Texas sued New Mexico in the United States Supreme Court over Rio Grande Compact deliveries, and the New Mexico Legislature's Interim Water and Natural Resources Committee activated a Drought Sub-committee.

Stream systems and sub-basins geographically define the adjudications.



June 3, 2003

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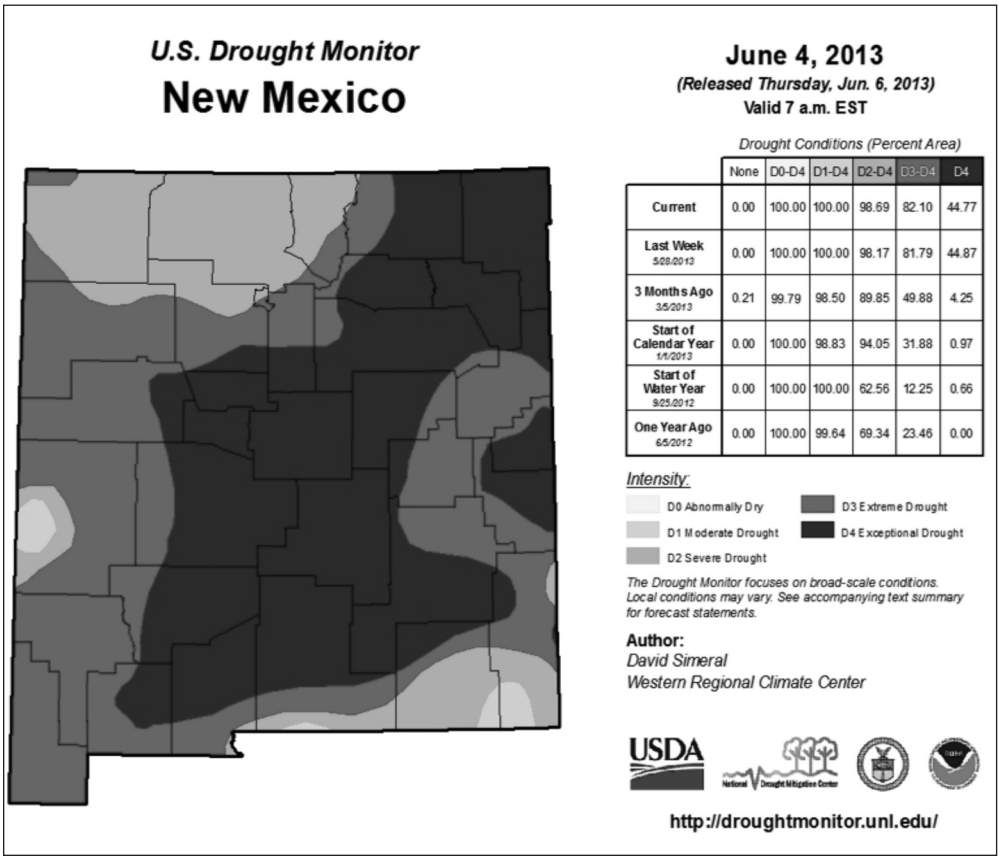
Mark Svoboda, National Drought Mitigation Center



June 4, 2014

U.S.D.A. Drought Monitor, New Mexico

Mark Svoboda, National Drought Mitigation Center

Priority Administration Legislation

In the 2003 legislative session, two committee members, Representative Joe Stell and Senator Sue Wilson Beffort, introduced identical bills directing the State Engineer to issue rules for priority administration and rules for expedited water marketing and leasing. The bills stated that priority administration should not interfere with adjudications, should not impair water rights any more than necessary for enforcement, and should not increase depletions. The bills stated that rules for expedited marketing and leasing of water should be based on the appropriate hydrological models. Both bills were amended to exempt acequias and community ditches and to require that rules for marketing and leasing water be consistent with current law governing changes of point of diversion, place of use, and purpose of use of water rights. Both bills passed both houses and Senator Beffort's bill was signed by the governor, becoming § 72-2-9.1 of New Mexico law.

Acting on the new law the State Engineer issued proposed rules, titled Active Water Resource Management (AWRM) in early 2004, and invited comment. A public hearing was held, comments were collected through the State Engineer's website, and revised proposed rules were issued—followed by another public hearing. In December 2004, the final version of the rules was published and AWRM officially went into effect.

Active Water Resource Management Regulations

The AWRM regulations broaden and formalize the Office of the State Engineer's (OSE) use of water districts and water masters to manage the state's waters. A water master is an appointed local administrator with the full authority of the State Engineer within the district. Water masters use measuring and metering and district-specific rules to administer and protect water rights.

The regulations call for establishing districts and subdistricts based on stream system hydrology. The water master district manager compiles a master list of all water rights in the district and their priorities. The State Engineer conducts a general hydrological analysis of available water and, with extensive input from water right owners, develops district-specific rules for priority administration. Installation of headgates and/or meters may be required for some or all points of diversion. The water master works with water right owners to monitor and enforce compliance with the district's rules. The water master is also charged with keeping records of and regularly reporting on water use and compliance measures.

> "We are committed to taking proactive steps toward the management of all New Mexico rivers. Steps taken this year to develop AWRM into a statewide program will help provide services for active administration that will apply to future drought cycles as well as during wet cycles in our state."
>
> —N.M. State Engineer, John D'Antonio Jr. (2003–2011)

During times of shortage when the water supplies available within the district are insufficient for all water rights within the district, the water master distributes the available water through one of four forms of administration identified in the regulations. The four forms of administration are:

- Direct flow administration
- Storage water administration
- Depletion limit administration
- Alternative administration

Under *direct flow administration,* the water master may determine on a daily or other periodic basis (1) the currently available direct flows of surface water, (2) which water rights are in-priority, and (3) which rights are out-of-priority. The water master then delivers water to those rights that are in-priority. Those rights, which are

The water master in a district can employ *storage water administration* to manage the distribution of storage water released for water right owners and to protect storage water releases from diversion by water right owners having only an administrable water right to stream flows.

out-of-priority, are not served until more water becomes available. The goal of direct flow administration is to administer to protect seniors through strict priority administration.

The water master in a district can employ *storage water administration* to manage the distribution of storage water released for water right owners and to protect storage water releases from diversion by water right owners having only an administrable water right to stream flows.

Depletion limit administration may be used for conjunctively managed surface and ground water sources. The water master establishes an administration date and uses it to identify a priority cutoff point. Any water right owners whose priority date falls after the administration date must stop diverting and using water until the administration date is revised or cancelled. An administration date may be ordered to (1) remedy supply problems within the district or elsewhere in the stream system or (2) service interstate stream compact obligations. Owners of water rights may object to the administration date and may request a hearing. The goal depletion limit administration is to allow the surface supply used by senior rights to recover from junior groundwater pumping depletions.

Under *alternative administration,* owners of water rights that are out-of-priority may obtain other water by filing a replacement plan with the Office of the State Engineer (OSE). A replacement plan requires an agreement between the junior water right owner facing a cutoff and an owner of a water right that is senior to the administration date who will not be using that water. The plan allows the junior water rights owner to use the senior water right owner's water temporarily. The State Engineer may approve the replacement plan for a maximum of two years after determining that the temporary change of place and purpose of use is hydrologically viable under the district's rules. A replacement plan must be published and other water right owners may object to it. The agency may require changes to the plan. The plan can be revoked later if water supply conditions make revocation necessary. A replacement plan is not to be a substitute for permanent acquisition of water rights when an owner of a junior water right is likely to be cut off permanently.

Communities may also work together to develop shortage-sharing agreements, which may be implemented under alternative administration. The rules encourage water right owners to collaborate in working out these agreements as an alternative to priority administration. Shortage sharing agreements must be approved by the State Engineer and implemented in place of strict priority enforcement.

When the proposed AWRM framework was published for public review in 2004, a number of objections were raised. These objections were mostly based on the perceptions that (1) the State Engineer was substituting his authority and judgment for that of the courts to conduct water rights adjudications, and (2) the State Engineer's hearing process was inadequate for a water right owner who had been cut off to protest an adverse decision. Another objection was that replacement plans would become transfers of water rights without the procedural protections of transfers under current law. The State Engineer countered that any determinations regarding water rights under AWRM are temporary, for the purpose of administration, and subject to correction by the adjudication process, which continues separate from AWRM administration.

In 2005, Tri-State Generation and Transmission Association and the New Mexico Mining Association filed suit in Socorro County seeking to have the AWRM regulations declared unconstitutional. In November 2012, the New Mexico Supreme Court issued its decision rejecting Tri-State's claims and overturning the decisions of the lower courts. The Supreme Court upheld that the State Engineer's authority to promulgate the AWRM regulations and to use the types of evidence listed in the regulations for determining priority. It held that the legislature delegated to the State Engineer the authority to make these determinations administratively and that this authority does not conflict with the authority that the legislature separately delegated to the courts to adjudicate water rights. The Court found that the legislature's delegation of authority to the State Engineer is constitutional; the regulations do not violate due process; and the regulations are not unconstitutionally vague.

Conclusion

The urgency for water management in the state is growing more intense. In 2012, the entire state experienced severe to extreme drought conditions. In 2013, nearly all the state suffered extreme drought conditions. It is clear that the State Engineer must be ready to address water shortages.

To that end, the OSE Water Rights Division has moved forward with implementing AWRM in its conjunctive management of ground and surface water within river basins. The Division's AWRM efforts have focused on getting implementation tools in place: installing meters; inventorying water rights; developing GIS-based databases; and, abstracting, imaging, and posting water right files online so that they are immediately available across the state. These tools will be used to process new and changed water right applications. The Division has also assembled interdepartmental teams to manage water within river basins and to continue developing district-specific regulations for administering water in times during shortages.

The State Engineer has identified seven priority stream systems for implementation of Active Water Resource Management: the Lower Pecos, the Lower Rio Grande, the San Juan, the Upper Mimbres, the Rio Gallinas, the Nambe-Pojoaque-Tesuque, and the Rio Chama.

The State Engineer has identified seven priority stream systems for implementation of Active Water Resource Management: the Lower Pecos, the Lower Rio Grande, the San Juan, the Upper Mimbres, the Rio Gallinas, the Nambe-Pojoaque-Tesuque, and the Rio Chama. Now that the State Engineer's legal basis has been affirmed by the Supreme Court, he has directed his staff to move forward with district specific regulations to actively manage water under AWRM in those seven priority basins.

According to State Engineer Scott Verhines, the Tri-State "ruling upholds the water management tools which are exactly what New Mexico needs to navigate the difficult drought conditions burdening our state. The last twenty-four months have been the hottest and driest in recorded state history. Active Water Resource Management gives New Mexico the ability to respond to our variable water supply."

By Paul Bossert, Esq. (2008)

Latest Update by
Gregory C. Ridgley, Esq. (2013)

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Contributor

DL Sanders, Chief Counsel, Office of the State Engineer

Domestic Wells

> "As more and more domestic wells are granted, the numbers will eventually lead us back into a shortfall. What do we do then? Go back and ask the Legislature for more money to further ensure compact deliveries because more domestic wells are being granted?"
>
> Attorney Steve Hernandez, discussing the Pecos River Basin (October 2008)

The domestic well statutes direct that the State Engineer "shall" issue a permit for certain types of temporary or low volume wells, including wells for household use. For the past fifty-five years, the Office of the State Engineer (OSE) has interpreted this to mean that such permits are granted with no evaluation, public notice, or hearing.

In August of 2008, Judge Robinson, of the 6th Judicial District of New Mexico, ruled that the domestic well statute is unconstitutional. The ruling came in a suit initiated by Horace Jr. and Jo Bounds, who irrigate land in the Mimbres River Basin under water rights exercised since 1869. The Mimbres Basin has been closed to any new requests to appropriate water since 1972, and an adjudication of Mimbres water rights was completed in 1993. Nevertheless, the Bounds complained that since the completion of the adjudication, forty-five new domestic wells had been permitted and drilled in the area, putting the availability of their water at risk. Judge Robinson found that this system of permitting domestic wells was inconsistent with the state constitution's requirement that all water be administered according to the prior appropriation system. The OSE appealed the case, and the Court of Appeals reversed the district court in 2010. This decision was appealed to the New Mexico Supreme Court.

The Supreme Court affirmed the appellate decision in July of 2013, holding the domestic well statute does not violate the doctrine of prior appropriation as set forth in the New Mexico Constitution. It held that domestic well statute "dictates the procedure for how one acquires a permit to drill a domestic well." The Court expressly set forth that domestic well rights are "inherently conditional" on the "availability of water" just like any other water right. Accordingly in the event of a water shortage, the priority administration doctrine dictates that a junior domestic right may be curtailed or cut off to protect senior users.

History

New Mexico's first groundwater statute was enacted in 1927. It directed the OSE to identify groundwater basins and to administer water use under the prior appropriation system. At that time, approximately 1/8 of all water used in the state was groundwater. However, advances in well-drilling technology began to provide water users access to more groundwater so that by the early 1950s groundwater comprised half of all water used in the state. The administrative burden of the OSE grew proportionally. As groundwater basins were identified, more well applications had to be evaluated for the possibility of impairment of other water rights, more

A domestic well may be the only feasible source for household water in some rural areas of New Mexico.

notices of applications published, and more hearings held. Recognition of the interconnectedness of surface-water and groundwater made the determination of "impairment" even more complex. For more information, please see the chapter "Groundwater" in this edition of *Water Matters!*.

In 1943, the OSE stopped requiring publication of notice for domestic well applications. The legality of treating domestic well applications differently was questionable, so the legislature acted to confirm the OSE's judgment that certain types of wells did not require a full evaluation because of minimal production or temporary use. Thus, in 1953, the first version of today's domestic well statute was enacted.

The 1953 statute directed the OSE to issue a permit to any applicant for a well for watering livestock, for non-commercial irrigation of no more than one acre, or for domestic use; or for temporary use (no more than one year) for mining or prospecting. A permit typically allowed use of up to three acre-feet per year of water. Only a temporary well application would be subject to a hearing and only if the OSE believed it would permanently impair existing rights. The statute remained substantially unchanged for nearly forty years.

Circumventing Management Efforts

A domestic well may be the only feasible source for household water in some rural areas of New Mexico. Average household use in New Mexico is approximately 1/4–to1/3 acre-foot per year. In this context of high utility, low volume, and widely dispersed usage, the automatic approval of domestic well applications made sense. However, New Mexico's population has more than doubled since the passage of the domestic well statute and is mostly concentrated in and around urban areas. This concentrated growth has brought intense pressure on local water supplies, necessitating careful water management. The unchecked development of domestic wells can make this difficult.

Before 2013, water for new suburban households might come from an extension of a municipal system, a new community well system, or domestic wells. To connect to a municipal utility, a developer might have to pay a fee, acquire water rights, or just wait until the utility can provide service. Community well systems are subject to state and federal drinking water regulations and require water rights for their supply. However, every subdivision lot was entitled to a domestic well, subject to municipal or county regulations. Developers have taken advantage of the domestic well law to avoid the difficulty of dealing with water rights or complying with drinking water regulations. But the additional withdrawals from the common water supply and the cumulative impacts of domestic wells cause concern among existing users.

Subdivision Act and 1995 Revisions

Subdivision development outside of municipalities is governed by the local county commissions through their zoning authority and the Subdivision Act. The Subdivision Act requires counties to adopt appropriate rules of procedure for approval of subdivision proposals. Prior to 1995, the Subdivision Act required only that the developer provide information about local water availability and how water would be supplied. The OSE evaluated the information for completeness and accuracy. It remained up to the county commission to decide whether the water supply plan was acceptable.

The legislature amended the Act in 1995. Those revisions require counties to develop rules for quantifying a subdivision's water needs, assessing the availability of water to meet those needs, and conserving water. The revised statute requires the OSE to evaluate

whether a subdivision's water supply proposal conforms to county rules, whether the developer can fulfill the proposal, and whether water is available to fulfill the proposal. If the developer proposes to use domestic wells, the OSE does not evaluate whether the wells will impair other users.

The 1995 revisions made the OSE's approval a mandatory prerequisite of subdivision approval. In 1997, however, the legislation was amended and now a county commission can approve a subdivision against the OSE's recommendation.

Recent Changes

Two bills were signed into law following the 2013 legislative session. Both bills prevent the development of domestic wells for subdivisions and require that developers prove they have acquired an adequate water supply before the subdivision plans are approved. The goal of the bills is to protect the rights of prior water appropriators.

The first bill added a requirement of proof of adequate water supply on lands from which irrigation water rights have been severed. It provides two procedural options for a developer seeking approval for a proposed subdivision of land from which irrigation rights have been severed. NMSA 1978, § 3-20-9.1.

One option requires the developer to provide proof of a commitment to provide service from a water provider and a verification from the State Engineer that the commitment fulfills the two requirements: a) whether the developer can furnish water sufficient in quantity to fulfill the maximum annual water requirements of the subdivision; and b) whether the developer can fulfill the proposals in the developer's disclosure statement concerning water, excepting water quality.

The other option requires the developer to supply proof of a water right secured by a permit other than one for a domestic well. Prior to approval, the State Engineer must determine whether the amount of water secured by the permit is sufficient to fulfill the maximum annual water requirements of the subdivision, including water for indoor and outdoor domestic uses.

On August 15, 2006, after a series of public hearings, the State Engineer adopted extensive new regulations for the administration of domestic well permits.

The second bill amends NMSA 1978, § 47-6-11.2 and relates to the approval of subdivisions containing ten or more parcels, any one of which is two acres or less in size. The statute sets forth two options for subdivision approval. The first option requires a proof of service from a water provider and verification from the State Engineer that the developer can fulfill the requirements of Paragraph (1) of Subsection F. The second option requires a developer to supply proof of a right to use water from a source other than a domestic well before a subdivision can be approved.

Both statutes were enacted to safeguard senior water rights from possible encroachment resulting from domestic well use. The first statute seeks to discourage the practice of "double dipping," whereby a developer purchases land with water rights, subdivides the land, then severs and sells the water rights to a third party. New landowners, with no appurtenant water, resort to drilling individual domestic wells for each subdivided plot. The second statute precludes dense clusters of domestic wells and their potential for adversely affecting senior appropriators.

Domestic Well Management Regulations

On August 15, 2006, after a series of public hearings, the State Engineer adopted extensive new regulations for the administration of domestic well permits. N.M. Code R. § 12.27.5. On October 31, 2011, several amendments to NMAC § 19.25.5 were adopted.

Under the regulations, a domestic well permit allows use of up to one acre-foot per year for a single household or up to three acre-feet per year in areas where an applicant can show that the total diversion will not impair existing rights. Where a right serves multiple households, the permitted diversion shall not exceed one acre-foot per year per household and shall not exceed three acre-feet per year for a combined diversion serving three or more households. Valid water rights may be transferred from elsewhere within the basin into a domestic well, but no well may divert more than three acre-feet per year. Public notice is still not required, and there is no opportunity for protest to any domestic well application. No change to the point of diversion or place or purpose of use is allowed in connection with these wells, except under a court-approved water rights settlement or an OSE-approved regionalization plan of a mutual domestic water consumers association. The regulations include a new fee structure.

A domestic well application may be approved, rejected, or approved with conditions. In locations where a court order restricts water use or the government has recommended against drilling wells due to water quality concerns, the application may be rejected. Conditions may be imposed on a permit, such as minimum distance from adjacent wells, metering and monitoring requirements, compliance with local ordinances, restrictions on purpose of use, or other conditions as the situation warrants. A permit may be cancelled if a permit holder fails to comply with conditions.

To prevent impairment of surface rights where groundwater is connected to a stream, the OSE may declare a domestic well management area (DWMA) and impose further restrictions on domestic wells. Draft guidelines for administration of a DWMA must be reviewed at a public hearing. Within a DWMA, a domestic well may divert only 1/4 acre-foot per year per household (or less, per local guidelines), or up to three acre-feet per year total if the well serves multiple households. All wells must be metered. For approval of a new well within the DWMA, the OSE may require the transfer of a valid water right from another user within the DWMA. To date, the OSE has not designated any domestic well management areas.

Valid water rights may be transferred from elsewhere within the basin into a domestic well, but no well may divert more than three acre-feet per year.

Municipalities also have the authority to regulate the drilling of domestic wells. In 2001, the legislature enacted a new section of the municipal code, NMSA 1978, § 3-53-1.1, giving municipalities the authority to restrict drilling of domestic wells by ordinance. Within a municipality that has enacted such an ordinance, an applicant for a domestic well must obtain a permit from the municipality after receiving a permit from the OSE, NMSA 1978, § 72-12-1.1. The municipality may refuse to permit the domestic well only if municipal water lines run within 300 feet of the property, the cost to the applicant of hook-up is no more than the cost of drilling the well and the municipality can provide water service within ninety days. The New Mexico Supreme Court confirmed the authority of municipalities to restrict domestic wells in the 2007 case *Stennis v. City of Santa Fe.*

Legislative Initiatives

There have been several bills in recent years proposing changes to domestic well administration. Some would have given the OSE authority to declare critical management areas (CMAs) and to implement a more restrictive permitting process where domestic wells are impairing other water rights (similar to the Domestic Well Management Areas described above). Others would have changed the current statute's wording from "the State Engineer *shall* issue a permit" to "the State Engineer *may* issue a permit," allowing the OSE to

develop procedures for restricting domestic well permits where appropriate. Other states have legislated a special status for domestic wells that limits their use and exempts them from priority administration.

Status of Domestic Wells

The OSE's records show a recent decline in the issuance of domestic well permits throughout New Mexico. Between 2009 and 2011, District I domestic well technicians issued only 2,377 permits. District I serves Albuquerque and Santa Fe. This reduction is a direct result of the continued decline in the housing market. In contrast, applications to drill replacement domestic wells have increased due to the drop in groundwater levels. District V in Aztec also experienced a decreased demand for domestic well permits. Instead, technicians have received more requests to transfer surface-water rights.

The OSE's records show that 26 percent of the estimated 137,000 domestic wells statewide (year 2000 data) are within one mile of a perennial stream. Withdrawals from these wells may have an almost immediate impact on streamflow. (For hydrologic modeling purposes, the OSE assumes that wells within one mile of a stream have a 100 percent same year effect on streamflow.) An additional 27 percent of domestic wells are within five miles of a perennial stream. The impact of these wells is delayed over time but nevertheless eventually reduces streamflow. Former State Engineer Tom Turney estimated in 2002 that ultimate cumulative depletions from domestic wells on the Rio Grande would be 36,000 acre-feet per year. These impacts affect senior water rights holders, including Pueblos and tribes, and jeopardize fulfillment of the State's compact obligations to Texas. In 2005, the OSE estimated that domestic wells in the Rio Grande Basin withdrew 24,556 acre-feet of water. The OSE continues to process thousands of domestic well applications each year—4,934 in fiscal year 2007. As a result of the current economic downturn, the number of applications processed in the last couple of years has dropped dramatically for the time being. By October 2012, there were an estimated 160,000 domestic wells throughout the state.

The legislature and the State Engineer both have a role in regulating the use and proliferation of these wells where the groundwater tables are at risk: the legislature through enactment of new regulations such as the subdivision statutes of 2013; and the State Engineer through the development and enforcement of regulations.

Conclusion

Domestic wells are important part of the state's water supply, especially in rural communities and as such are permitted upon request. The legislature and the State Engineer both have a role in regulating the use and proliferation of these wells where the groundwater tables are at risk: the legislature through enactment of new regulations such as the subdivision statutes of 2013; and the State Engineer through the development and enforcement of regulations. The goal of these actions is to protect senior surface and groundwater right owners from depletions and to protect the aquifers upon which domestic wells and others rely.

By Paul Bossert, Esq. (2008)

Latest Update by Sarah Armstrong, University of New Mexico School of Law, Class of 2015 (2013)

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Consuelo Bokum,
New Mexico Water Dialogue

Steve Hernandez, Esq.,
Steven L. Hernandez Law Office, PC

Susan Kelly, J.D. (2010 updates)

Kari Olsen, University of New Mexico School of Law, Class of 2014 (2012 updates)

> "Many western rural areas have never had adequate water supplies and have a need for a reliable water supply to attract and maintain rural economic and public health."
>
> Jim Dunlap, before the Committee on Energy and Natural Resources, U.S. Senate (May 11, 2005)

Community Water Systems

Apart from the major cities along the Rio Grande corridor, much of New Mexico remains relatively rural. Recent studies estimate a 2013 population of around 2,085,500 statewide. In the state fiscal year 2011, about 1,836,000 people, or 88 percent of New Mexico's population obtain their water from community water systems. Approximately 284,000 people, or about 14 percent of the population, receive their drinking water from community water systems serving fewer than 5,000 people. As of 2012, there are 1,148 public water systems that provide drinking water in New Mexico. Of these systems, 593 are community water systems; of these, 546 serve fewer than 5,000 people; of these, 410 serve fewer than 500 people; and, of these, 160 community water systems serve fewer than 100 people. Even in the more densely populated areas of the state, there are small systems located adjacent to the larger municipal systems.

In 2005, the Office of the State Engineer (OSE) contracted with the Utton Center and the Institute of Public Law of the UNM School of Law to review the statutes under which water and wastewater systems are organized and to summarize the statutory framework. A project management team comprised of representatives of the OSE, the N.M. Environment Department (NMED), and the N.M. Rural Water Association guided the effort. The purpose of this project was to develop information to enable researchers and policymakers to understand the statutory framework and take any next steps needed to improve it. The report is entitled *Water and Wastewater Systems in New Mexico: A Statutory Review and Comparison* and may be obtained through the Utton Center website listed below. This report has not been updated since 2005.

Challenges Facing Small Water Systems

The large number of small community water systems in New Mexico creates a challenge in providing safe, reliable drinking water to our citizens. Regardless of its size, the operators and directors of water systems are responsible for complying with all applicable regulations that ensure safe drinking water. To operate effectively, water systems must have sufficient financial, managerial, legal, and technical capacity. The smaller systems,

88 percent of New Mexico's population obtain their water from community water systems.

however, lack the resources of many larger systems and often cannot develop and/or sustain the necessary capacity.

Financial Capacity: Establishing sufficient financial capacity can be challenging for small community water systems. Financial resources must cover the cost of staff, insurance, legal services, professional bookkeeping, certified operators, expansion, scheduled or emergency repairs, and technology upgrades. The systems often do not have rate structures or the economies of scale that allow them to collect sufficient revenue to meet these needs. They tend not to have adequate reserves to address emergencies. Systems that must accommodate population growth need to find the resources to acquire new water rights and to expand their infrastructure. Systems that are vulnerable to drought because they rely on surface water or shallow groundwater may experience a financial short fall when faced with developing alternative water supplies. Although grants and loans are available, barriers to these resources include: inadequate bookkeeping resources to meet auditing requirements; lack of planning documents such as the Preliminary Engineering Report (PER) or Environmental Information Document (EID); organizational structures that preclude eligibility for some grants; and/or, a reluctance to take on debt.

Managerial and Technical Capacity: Community water systems need operators, management staff, bookkeepers, and directors. However, some small systems cannot afford certified operators or professional managers, relying instead on volunteer directors and/or volunteer operators. Even when operators are paid employees, it may be difficult to keep positions filled in some parts of the state because of location or competitive compensation from larger municipalities. Operators must be certified and participate in ongoing training to assure that the systems function properly and regulations, past and present, are understood and followed. Managers, board members, bookkeepers, and/ or directors must have sufficient training to ensure that billing and financial management processes are sufficient to meet auditing requirements.

However, some small systems cannot afford certified operators or professional managers, relying instead on volunteer directors and/or volunteer operators.

Legal Assistance: Community water systems need legal assistance to meet the issues encountered in the ordinary course of business and for the acquisition of water rights. Even when systems have sufficient established water rights, they need to be able to ensure compliance with existing water rights permits and to protest new applications for appropriations or transfers of water rights, which they believe might negatively impact their sources and supplies.

Regulatory Compliance: Community water systems that accommodate at least fifteen service connections or regularly serve 25 people daily at least 60 days out of the year are regulated under the Safe Drinking Water Act and the state drinking water regulations. These systems are responsible for collecting all microbiological and chemical samples from their distribution systems, although the NMED Drinking Water Bureau will assist in some instances. The Bureau performs all other sampling and pays for the analysis of compliance samples. The N.M. Water Conservation Fund provides funding to the Bureau to sample for some contaminants. NMSA 1978, § 74-1-13. Water systems must also comply with the New Mexico Drinking Water Rules (N.M. Code R. § 20.7.10), and Mutual Domestic Water Consumers Associations (MDWCAs) must comply with the Sanitary Projects Act. NMSA 1978, §§ 3-29-1 through 3-29-21.

Organizational Structure of Water Systems

The organization of a community water system may be developed using any one of a number of different structures. The study "Water and Wastewater Systems in New Mexico" lists 24 types of organizational structures. As a result, the ways in which systems operate and obtain funding also vary considerably. Some of the primary organizational structures include:

Mutual Domestic Water Consumer Associations (MDWCAs): Mutual Domestic Water Consumer Associations are authorized under the Sanitary Projects Act. The purpose of the Act is to "improve the public health of rural communities in New Mexico by providing for the establishment and maintenance of a political subdivision of the state that is empowered by the state to receive public funds for acquisition, construction and improvement of water supply, reuse, storm drainage and wastewater facilities in communities, and to operate and maintain such facilities for the public good." Today, there are approximately 200 MDWCAs. A MDWCA is a public entity formed to provide domestic water supply facilities, sewage works, or both. Articles of incorporation must be filed with the Public Regulation Commission (PRC). A board of directors elected by the members oversees a MDWCA. The board members must receive twelve hours of training on ten topics within their first two years of service. An association's rates are set by the board and must be sufficient to provide for operation and maintenance of the facilities. NMSA 1978, §§ 3-29-1 through 3-29-21.

MDWCAs cannot issue revenue bonds or tax the members, but they can apply for funding from the USDA Rural Development program, the Drinking Water State Revolving Fund, the U.S. Department of Housing and Urban Community Development Block Grant program (for planning only), the Rural Infrastructure Program, the Public Project Revolving Fund, and the Water Trust Fund.

Today, there are approximately 200 MDWCAs. A MDWCA is a public entity formed to provide domestic water supply facilities, sewage works, or both.

Water Cooperatives: If formed under the Cooperative Association Act, water and/or wastewater co-ops operate as private, membership-based organizations, governed by boards of directors elected by the members according to the bylaws. These co-ops are not public utilities subject to PRC regulation because they do not provide service to the public but rather to their members. They may own and hold membership in and share capital of other associations and corporations, issue bonds, or other obligations, and may borrow money, contract debts, and make contracts. The net savings must be apportioned once a year. There are no statutory provisions regarding rate making. As private entities, water cooperatives are not eligible for Water Trust Board Funding. Under the Sanitary Projects Act, water cooperatives may reorganize as MDWCAs, and thus be eligible for public funding, if they comply with applicable voting and filing requirements. NMSA 1978, §§ 53-4-1 through 53-4-45.

Municipal and County Utilities: Municipal and county utilities are overseen by the local governing body or a board appointed by the local governing body. They can issue bonds to finance water system improvements and are also eligible for all federal and state funding available to water systems including Water Trust Board funding.

Water and Sanitation Districts: Under the Water and Sanitation Act, water and sanitation districts are established by district courts and operate as public utilities and governmental subdivisions under the state or a county. They provide water and sanitation services as well as other services such as the construction of streets and parks. Each district is overseen by a board of directors who serve without compensation and are

elected by taxpayer-electors within the district. There is, however, no oversight body, other than the district court, for the administration of a district. A district can issue revenue bonds, levy taxes, and receive Water Trust Board funding. The board establishes service rates sufficient to cover the reasonable costs of doing business and to create sufficient revenue to cover the bonds issued. NMSA 1978, §§ 73-21-1 through 73-21-55.

Private Utilities (Investor Owned Utilities): Private utilities are regulated by the PRC. While there are some larger private utilities operating in the State, there are also numerous small private water systems serving small or rural developments and mobile home parks. Private utilities are not eligible for Water Trust Board or other state funding.

In addition to these types of organizations, various municipal and county improvement districts, public improvement districts, private non-profit organizations, and other associations may also provide water services in New Mexico. A number of different laws, passed at different times, offer different and sometimes inconsistent guidance to counties interested in owning and operating their own water supply and wastewater collection systems.

Review of Statutes Guiding Water Systems

The report, *Water and Wastewater Systems in New Mexico,* identified and evaluated statutes under which the different types of systems are organized and managed, as well as statutes relating to system financing, regulatory oversight, and water planning. Some of the key issues and gaps identified in the statutory assessment were:

Some statutes do not give water systems the means to protect their water supply sources from contamination.

Definition of the Service Area: Only a few of the statutes give the entity operating the water or wastewater system an exclusive service area or the tools to prevent encroachment, overlap, or duplication of services.

Source Water Protection: Some statutes do not give water systems the means to protect their water supply sources from contamination. While state and local laws provide limited protection, water systems themselves may not have the tools needed. Public water supplies have at times been affected and in some instances have been temporarily placed out of commission due to leaking underground storage tanks or other contaminant sources. Communities that have been affected include Alto, Hobbs, Los Alamos, Milan, Peñasco, Pojoaque, Santa Fe, and other locations around the state. For communities that do not have back up supplies, vulnerability to contamination can be a very serious issue.

Water Conservation Measures: Few statutes require that systems employ water conservation measures. This is a serious shortfall in view of the overall limited water resources in New Mexico. Moreover, integrating water conservation into all levels of water service is a key strategy for the State as reflected in the State Water Plan.

Governing Structure: Only a few statutes provide guidance to boards of directors to ensure skilled direction and management over time. The statutes don't consistently require the retention of board members and professional staff to ensure that the organization has the capacity and expertise to operate the system and manage the business. Small systems with volunteer directors may be unable to respond to the long-term challenges of system operation. There is also little guidance for an entity interested in changing its structure through reorganization, merger or joining with another structure for management of a shared resource. Finally, it is not always clear whether an organization is a private or a public entity. The status is important because it affects the rules that apply and the

funding that is available. A number of water and wastewater systems are operated by homeowner and property owner associations in subdivisions and developments, and there are no statutes that clearly guide the organization of these systems.

Financial Management: Water systems run into trouble when they do not plan sufficiently for replacement and repair of infrastructure or for emergencies; yet few statutes require that they engage in this type of financial planning or in maintaining reserve funds. Sometimes rates and charges are required only while bonds are outstanding or systems are applying for funding, and little attention is given to the use of rates to maintain long-term viability or to promote the conservation of the water supply. When small systems do not have adequate emergency capital for replacement parts, they are vulnerable to temporary or long-term disruptions in service.

System and Area-wide Planning: Community water systems should plan for the technical and managerial aspects of water service emergencies and long-term disruption of supply. There are few statutory requirements that an entity owning or operating a system engage in long-term capacity planning, drought management, or participate in regional water planning. Some small systems are unprepared for these eventualities, having no backup water sources or strategies for supplying water when there is a disruption in supply such as a lowered water table. The lack of planning and financial capacity to deal with emergencies can lead to severe consequences such as diminished or no service; for example, New Mexico communities including Hagerman, Cloudcroft, Los Brazos, Cañon, Otis, Carlsbad, Regina, and Eunice have faced acquiring emergency supplies following drought periods.

Some statutory organizational structures make the formation of a water supply or wastewater collection system very complex while others seem to make it too easy; and none of the existing structures offer a clear and comprehensive set of provisions to meet today's challenges. The 2005 review of the statutes indicated a clear need for improving the organization, management, and oversight of water systems in New Mexico. In 2006, the Sanitary Projects Act, which regulates MDWCA's, was amended to provide clearer guidelines, however several of the issues stated above remain unresolved.

Community water systems should plan for the technical and managerial aspects of water service emergencies and long-term disruption of supply.

Assistance for Community Water Systems

Several organizations, both in and out of state government, have assistance programs for community water systems. These organizations provide managerial, operational and financial training, funding, technical assistance, and oversight for operators, managers, and board members.

New Mexico Rural Water Association (NMRWA): This non-profit professional organization provides technical assistance and training to member water and wastewater utility operations throughout New Mexico. The NMRWA has over 485 system members collectively serving water to over 1,296,500 customers throughout New Mexico. Membership is open to New Mexico water and wastewater utilities serving less than 50,000 people, and to firms and individuals that adhere to the purposes of the Association. Today's membership includes mutual domestic water associations, municipal government water utilities, community water cooperatives, public water and wastewater sanitation districts, non-profit water utility organizations, and over 100 industry firms. NMRWA serves any water system in New Mexico regardless of membership. It is governed by a twenty-four-person board of directors, elected from systems throughout the state. The

NMRWA provides statewide, on-site assistance, training, and troubleshooting support to water and wastewater system operators, board members, and managers.

Association is funded by membership fees and funding partners, such as the U.S.D.A. Rural Development program, and the EPA.

The primary focus of NMRWA programs is to develop the capacity of small public water and wastewater systems so that they may provide quality, consistent services to rural families. Through its circuit riders, NMRWA provides statewide, on-site assistance, training, and troubleshooting support to water and wastewater system operators, board members, and managers. It opened an Albuquerque training facility in 2011. In FY 2012, NMRWA made 1,875 onsite contacts and trained 972 operators. In 2011, the organization moved to a fee-based training program, which gives members a discount. This move was necessitated by funding cuts by EPA and has resulted in operators taking the training more seriously. Other services include: assistance with leak detection, emergency technical issues, wellhead and source water protection planning, establishing rate structures, operating disinfection systems, wastewater technical issues, tribal system issues, operator accreditation, training for board members, contamination prevention, regulatory assistance, learning sustainable development practices, and training on how to form a mutual domestic water consumers association.

Rural Community Assistance Corporation (RCAC): is a non-profit organization with 35 years of experience providing a wide range of community development services to rural communities in fifteen western states, including New Mexico. Its program areas include environmental infrastructure (water, wastewater and solid waste), affordable housing, economic development, leadership development, and community development finance. RCAC is a certified Community Development Financial Institution (CDFI) and finances water, wastewater, and solid waste systems as well as affordable housing and community facilities.

RCAC focuses on regional collaborations and provides technical assistance, training, and financing. It assists water systems and communities with board, management, and operator training, strategic planning, and the preparation of five-year financial plans, rate studies, funding packaging, affordability analysis, funding applications, and compliance with funders' administration requirements. It helps cooperatives and homeowners associations to covert to Mutual Domestic Water Associations. Throughout the west in FY 2012, RCAC's technical assistance providers worked with 522 communities, delivered 290 workshops, drafted 48 work plans, developed five community strategic plans, and trained 80 individuals in green infrastructure.

Southwest Environmental Finance Center (SWEFC): The Southwest Environmental Finance Center provides training and other assistance for water systems in asset management and capacity building including, source water protection, tribal water system compliance, tribal operator certification, water regionalization, drought preparedness planning, arsenic rule compliance, and leak detection.

NMED Drinking Water Bureau (DWB): The NMED Drinking Water Bureau provides training and assistance to community water systems. The DWB periodically provides Operator Certification Training as well as training on specific regulations or topics relevant to system operation at locations around the state. It is the state's largest provider of board training. It also provides training and assistance to operators regarding technical, managerial, and financial capacity matters and conducts vulnerability assessments of water sources. The Water Conservation Fee helps to pay the cost of providing these services. The Water Conservation Fund is funded through a water conservation fee of three cents per 1,000 gallons of water produced by every public water system.

NMED Construction Programs Bureau (CPB): The NMED Construction Programs Bureau's mission is to assist communities in developing sustainable and secure water, wastewater, and solid waste infrastructure. The CPB offers a web portal (see below) to assist communities in finding water, wastewater, solid waste, and tribal infrastructure assistance, support, and funding streams. The CPB provides engineering and project planning and preparation; provides project oversight; assists with compliance with regulations and audit reports; and conducts sustainability reviews of management, financial, and capital improvement plans.

Financing for Small Water Systems

One of the challenges facing small rural water systems is acquiring financing for system planning, design, construction of improvements, periodic upgrades, and in some instances, expansion. In addition to financing for routine system operations, which is normally covered through the rate structure, water systems need funds to deal with emergency equipment repair or replacement. In many small systems, the rate structure for 6,000 gallons is over $50 a month. Even when it is available, many small systems do not qualify for funding because they already have maximized loan capacity and loan providers do not wish to assume the risk for additional loans. There is not an agency in the state that oversees and/or coordinates or decides what a community can afford, where they may obtain the funding, or even help put a funding package together.

The NMED Construction Programs Bureau provides oversight for several loan and grant programs. In calendar year 2012, the CPB managed and/or provided technical oversight for two hundred (200) projects from the following and other funds.

Special Appropriations Program (SAP): Special Appropriations are state grants for infrastructure projects. They are issued when authorized by the New Mexico legislature and approved by the Governor. Since 1973, the CPB has administered over $200 million in special legislative appropriations. Communities must apply for these funds through their legislative representative and the funds are distributed through state agencies. The agencies also oversee the expenditure of the funds. In the 2012 Legislative Sessions, the Bureau received 43 new Severance Tax Bond appropriations valued at $6,578,016, and 12 reauthorizations. It disbursed over $22 million for water, wastewater, and solid waste projects; performed administration and construction oversight for 73 projects; and closed 30 projects. This funding is helpful to communities; however, in many cases it is not sufficient to complete a project. Communities can spend years trying to find other funding so they can complete fully functioning improvements.

One of the challenges facing small rural water systems is acquiring financing for system planning, design, construction of improvements, periodic upgrades, and in some instances, expansion.

Clean Water State Revolving Loan Fund (CWSRF): Through the Clean Water State Revolving Fund Program, NMED maintains a revolving loan fund to provide a source of low-cost financing for a wide range of wastewater or storm water drainage projects developed to protect surface and groundwater sources. Funds may also be used for projects that control nonpoint source water pollution, such as a solid waste and septic tank installations. The CPB executed two construction loan agreements under the CWSRF in December of 2012. These loans provided funds to: a) San Juan County for an $86,000 loan at 3 percent interest and b) the City of Las Vegas for a $356,000 loan at 0 percent interest. The CPB is currently providing oversight for eight construction project loans and grants.

The Drinking Water State Revolving Loan Fund provides low-interest loans to water systems to finance the cost of repair and replacement of drinking water infrastructure, ensure compliance with drinking water regulations, and protect drinking water quality and public health.

Rural Infrastructure Revolving Loan Program (RIP): The Rural Infrastructure Revolving Loan Program provides financial assistance to local authorities for the construction of or modification of water supply, wastewater, and solid waste facilities. The maximum loan per entity and project is $2 million per fiscal year. Eligible entities include any incorporated city, town, village, MDWCA or water and sanitation district whose facilities serve a population of less than 20,000 persons or a county that serves a population of less than 200,000 persons. Eligible projects include infrastructure improvements, treatment plant improvements, water quality improvements, water rights acquisition, and costs for legal fees, easements, or engineering studies. In 2012, the interest rate for loans was reduced from 3 percent to 2.375 percent allowing more communities to accomplish essential infrastructure improvements. As of December 31, 2012, the Bureau has 12 active RIP loans in construction, totaling $5,692,832. There are currently ninety-four loans in repayment with a loan balance of $14,572,195. NMSA 1978, §§ 75-1-1 through 75-1-6.

New Mexico Water Trust Board (WTB): The Water Trust Board provides grant and loan funding to New Mexico's public entities in five project categories: 1) storage, conveyance, and delivery of water; 2) implementation of the Endangered Species Act collaborative programs; 3) restoration and management of watersheds; 4) flood prevention; and, 5) conservation, recycling, and treatment or reuse. Recently, the WTB approved new capacity criteria for funding water systems. N.M. Finance Authority (NMFA) staff, in conjunction with other agencies and stakeholders, will be developing specific policy related to the new criteria in the coming months. Further details of Water Trust Board Funding are provided in a separate article within this publication.

Drinking Water Revolving State Loan Fund (DWSRLF): The Drinking Water State Revolving Loan Fund provides low-interest loans to water systems to finance the cost of repair and replacement of drinking water infrastructure, ensure compliance with drinking water regulations, and protect drinking water quality and public health. It is co-administered by the NMED Drinking Water Bureau and the NMFA. Community water systems and non-profit, non-community water systems may apply for this funding.

American Recovery and Reinvestment Fund (ARRA): The American Recovery and Reinvestment Act provided funds for the CWSRF program. Over $23 million in ARRA subsidization has been provided to seventeen New Mexico communities. As of June 30, 2012, all the ARRA funds for New Mexico had been disbursed.

The N.M. Finance Authority administers loans from the Public Project Revolving Fund (PPRF) and the U.S.D.A. Rural Development program's Water and Wastewater Grant Fund. The PPRF offers small loans for public projects costing up to $1 million per project and capital equipment purchases. The Water and Wastewater Grant Fund provides financial assistance for water and wastewater systems in communities with populations of up to 10,000 persons.

The NMFA also administers a grant program that helps systems complete planning documents including those PERs, EIDs, Asset Management documents, Water Plans, and others. Although this is a grant program, communities qualify based on the Median Household Income (MHI). For some small systems where the MHI is high for the general area the grant can be as low as 25 percent thus the communities cannot afford the loan, and the planning is not completed.

Regionalization

In recent years there has been interest in determining where improvements to small water system operations can be achieved through regional cooperative alliances or mergers. The various levels of regional cooperation range from simple measures such as sharing of equipment in emergency situations, to full physical inter-connection of infrastructure. Examples of regionalization projects in New Mexico include the Eastern New Mexico Rural Water System (or Eastern New Mexico Water Utility Authority); the Mariposa Alliance, the San Juan County Rural Water Association, and the San Juan Water Commission in San Juan County; the Rio Embudo MDWCA, the Santa Cruz River Valley Coalition, the El Rito Regional, and Santa Cruz Regional MDWCA in Rio Arriba County; the Greater Glorieta Community MDWCA in Santa Fe County; the Valdez MDWCA, Lower des Montes MDWCA and Union del Llano MDWCA in Taos County; the Lower Rio Grande Public Water Works Authority in southern Doña Ana County; the Sangre de Cristo Regional in Guadalupe County; and the Albuquerque Bernalillo County Water Users Authority in Bernalillo County. The backbone of the *Aamodt* water rights settlement agreement is the construction of a regional water system for the Pueblos of Nambe, Pojoaque, San Ildefonso, and Tesuque and for non-Indian people in the Pojoaque Valley Basin through participation of the County of Santa Fe.

Regionalization has helped systems improve at all levels. Some immediate results include the ability to afford loans and to build reserves. Some small systems have built sufficient reserves in half a year. Small systems also benefit through reducing the number of board member volunteers, in an age when people are less willing to volunteer; in one case, the board membership reduced from thirty-five to seven individuals. The customers of regional systems have also experienced improved water service, customer service and responsiveness to issues.

One important cooperative program is known as the Water/Wastewater Agency Response Network (WARN). This utility network is private and voluntary. It is based upon an agreement between systems to help each other in emergencies, whether man-made or natural. This agreement sets out rules that govern emergency assistance. Membership is open to all drinking water and wastewater utilities in New Mexico, and joining or executing the agreement is free. More information can be found on the NMRWA website.

Programs to improve efficiencies through regional cooperation or merger will be important to the future of drinking water systems in New Mexico. Many see regional solutions as a boon to community water systems with problems such as run-down infrastructure, poor source water quality or availability, insufficient staffing, or budgetary issues.

Today, several organizations support regionalization as one solution to small water systems problems. NMED, RCAC, and the others are taking a leadership role in several projects. Key funding sources also promote regionalization by giving a preference to regional projects. However, regionalization can be difficult and time consuming, requires cooperation between several entities, and may result in the loss of local autonomy for systems. These issues can fuel reluctance on the part of community water systems' long-term board members and leaders to participate in a regionalization project.

There has been a call for more coordinated support from the state legislative and executive branches. Systems that run well at a reasonable cost may not need to

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consolidate with others to keep providing reliable, good quality water to their consumers. In many cases, however, these systems join in a regionalization effort because they are planning for long-term sustainability and recognize the decreasing interest in volunteering for a board or committee positions. The EPA recommends that systems that are having problems, or are concerned about problems in the future, evaluate all their options including regionalization.

Recent Developments

Despite statewide support of community water systems, many New Mexico citizens remain in need of reliable access to potable water. During the drought of June of 2013, the village of Magdalena declared an emergency when only 13 feet of water remained in the town well to serve its 1,000 residents. Local businesses, including the health clinic, were forced to shut down. Without a backup source of stored drinking water, the village resorted to importing 46,000 gallons from nearby communities. As of June of 2013, village officials plan to build a backup well. They will first need a permit to operate the well. Engineers must also determine a means of incorporating a deeper well into the village's existing infrastructure.

Magdalena is just one of the 250 rural communities in New Mexico with a community water system dependent on a single source of water. In response to the Magdalena emergency, some of these communities now seek to implement measures to avoid running out of water during times of drought. The eastern New Mexico village of Wagon Mound recently teamed up with the New Mexico Drinking Water Bureau to develop a water conservation plan. Wagon Mound's only drinking water source is a single natural spring. In October 2013 it was reported that the spring's water level had dropped more than a foot and a half in a month. By working directly with the Drinking Water Bureau, Wagon Mound hopes not only to protect its remaining groundwater, but also to establish a secondary source of water in the event that their spring runs dry.

There are resources available to help community water systems develop the financial, managerial, and technical capability needed to provide reliable, safe drinking water to New Mexico citizens. There are, however, gaps in the funding, legal framework, and available qualified staff.

Interstate water disputes can also threaten the viability of rural community water systems. The town of Jal obtains its drinking water from a 50-mile long aquifer that runs along the Texas border. The city of Midland, Texas purchased land over the aquifer in 1961 on the Texas side of the state line. According to Texas law, as owner of this land Midland is entitled to use the aquifer to benefit its citizens without regard to the hydrological effects on anyone else, including Jal's populace. In 2012, Midland announced a proposed T-Bar Ranch pipeline that would transport water from the shared aquifer to the Midland area. As of May of 2013, Jal has requested that Midland respect the needs of their community. The New Mexico oil town was counting on this water supply to last forty years, and Midland's proposed uses jeopardize that plan.

Conclusion

There are resources available to help community water systems develop the financial, managerial, and technical capability needed to provide reliable, safe drinking water to New Mexico citizens. There are, however, gaps in the funding, legal framework, and available qualified staff. These gaps affect the ability of community water systems to run smoothly and in compliance with rules and regulations. Continued or improved funding and resources for system capacity development, technical and managerial assistance, and enforcement of water system violations are critical. Statutes can be strengthened to

increase accountability and consistency among organizational structures. Public education is necessary to help consumers understand the need for sufficient water rates to support adequate system operations. Broad and coordinated support among the branches of state government and other players is necessary to maximize efficient effective development, oversight, and support of community water systems.

By Joanne Hilton, Hydrologist and Susan Kelly, J.D. (2009)

Latest Update by Sarah Armstrong, University of New Mexico School of Law, Class of 2015 (2013)

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Ellen Drew, Rural Community Assistance Corporation

Heather Himmelberger, NM Finance Center

Mathew Holmes, NM Rural Water Association

Rob Pine, NMED Drinking Water Bureau

Blanca Surgeon, Rural Community Assistance Corporation

"64 Notices of Intent to Use 1,700,000 acre-feet per year of deep non-potable water were filed prior to passage of legislation regulating deep water in 2009."

N.M. State Engineer
John D'Antonio Jr., P.E.
(2003–2011)

Deep Water Regulation

With most of the surface water in New Mexico fully appropriated and with groundwater sources being drawn down and becoming less reliable, the search for new sources of water is reaching further and further afield of traditional sources and methods. Water wells deeper than 2,000 feet have been rare due to the expense of deep drilling and the uncertainty of finding potable water. Yet the combined circumstances of advances in hydrology and the escalating demand for new water have driven the search for water deeper than was previously considered practical.

Deep Water Statutes

Prior to 2009, NMSA 1978, § 72-12-25 through § 72-12-28 addressed deep water, stating that non-potable water in an aquifer whose upper boundary is deeper than 2,500 feet is not subject to the State Engineer's groundwater regulations. Non-potable water is water containing more than 1,000 parts per million dissolved solids. No permit was required to pump water from that depth. However, notice to the State Engineer and the neighboring public was required. The State Engineer could require reporting on such pumping activities and neighboring water users could file suit in district court if the pumping impaired their water supply.

In 2009, NMSA 1978, § 72-12-25 was amended to give the State Engineer jurisdiction over *non-potable* water in an aquifer whose upper boundary is deeper than 2,500 feet, if the State Engineer declares an groundwater basin. Certain uses of such water, including oil and gas exploration and production, prospecting, mining, road construction, agriculture, generation of electricity, use in an industrial process or geothermal use remain unregulated by the State Engineer. All other uses within deep basins that have been declared by the State Engineer require a permit to appropriate under the same regulations as shallow fresh water. NMSA 1978, § 72-12-1 through NMSA § 72-12-24.

Produced Water

Oil and gas operations routinely drill much deeper than water wells are usually constructed. This deep drilling typically brings more water to the surface than oil and gas, as "produced water"—83,000 acre-feet per year in New Mexico. Produced water

Yet the combined circumstances of advances in hydrology and the escalating demand for new water have driven the search for water deeper than was previously considered practical.

usually is contaminated with high concentrations of minerals. NMSA 1978, § 70-2-12 gives the Oil Conservation Division (OCD) of the Energy, Minerals and Natural Resources Department regulatory authority over disposition of produced water. "Disposition" usually means either reinjection to the depth from which it was drawn, after treatment to OCD quality standards if necessary, or evaporation and disposal of the remaining solid waste.

Exempting produced water from the 2009 amendment to NMSA 1978, § 72-12-25 allowed for political support for passage of the bill. The final Senate vote on the bill was 30–0 in favor. However, this continued division of regulatory oversight raises questions: If produced water is treated and sold as potable, who has regulatory authority? Oil and gas royalties and leases of state lands for oil and gas production are major sources of state funding. There is concern that further regulation of deep water will increase oil and gas production costs, potentially reducing oil and gas activity and income to the state.

The cities of El Paso, Abilene, and Fort Stockton in Texas and Scottsdale, Arizona are all augmenting their water supply with desalination projects.

Treatment of Brackish Water

Until recently, treating brackish water for drinking was not economical in most cases. Brackish water contains dissolved solids (salts) above 1,000 mg/L. Removing salts requires a lot of energy and disposing of the waste is also an issue. Efficiency of the process varies, depending on the levels of contaminants, but is generally in the range of 80percent. This means that 20 percent of the volume processed is left as highly contaminated waste. However, the increasing costs of replacing or augmenting dwindling water supplies have led some municipalities to undertake large-scale desalination projects. The cities of El Paso, Abilene, and Fort Stockton in Texas and Scottsdale, Arizona are all augmenting their water supply with desalination projects. The city of Alamogordo has been granted a permit to pump 3,000 afy of brackish groundwater in the Tularosa Basin, which it plans to purify and add to the City water system. None of these projects, however, uses deep water.

Some of the Currently Proposed Projects in New Mexico

Sandoval County: In 2006, notice was filed with the State Engineer of intent to drill deep wells in Sandoval County. At that time deep non-potable wells were exempt from State Engineer oversight. These wells would divert up to 16,000 acre-feet of water per year to supply development planned for the west side of the city of Rio Rancho. Exploratory wells were drilled by Sandoval County in partnership with a private company. Non-potable brackish water was discovered between 3,700 and 3,800 feet below ground surface in both wells. These wells are within the Rio Puerco watershed but may not be connected to surface water. Due to the limited testing to date, the amounts available are unknown. In 2008 and 2009, notice was filed for additional wells in Sandoval County; filers included the State Land Office jointly with Sandoval County and the County jointly with one private land owner to divert up to an additional 43,200 afy; there were also several other filings from private entities in Sandoval County in 2009, totaling more than 200,000 afy.

Atrisco Land Grant: In July of 2008, Atrisco Oil and Gas announced that it was exploring the possibility of exploiting a large brackish aquifer it had discovered on Albuquerque's west side (in the Rio Puerco basin between the volcanoes and the Rio Puerco, north of I-40) at a depth of 7,000 feet. It filed a notice of intent to appropriate 12,000 afy from 35 wells. Atrisco is exploring the feasibility of treating and marketing the water to a water provider. The Albuquerque Bernalillo County Water Utility Authority and the

Middle Rio Grande Conservancy District have expressed concerns that the aquifer tapped by Atrisco is not truly separate from those used by the Utility and that the flow of the Rio Grande may be affected.

Pajarito Land Grant: Commonwealth Utilities, out of Moriarty, has filed a notice of intent for 110,000 afy from the southwest mesa of Albuquerque (in the Rio Puerco Basin on land along the Rio Puerco, within the Pajarito land grant) from one 5,000-foot deep well it has yet to drill. Commonwealth estimates the cost of drilling the well and treating the water to be $500 million.

Water users adjacent to these projects are skeptical that the wells will not affect their water supply. However, the hydrogeology at that depth is not well known. It may be difficult to determine whether such deep water is connected to the Rio Puerco Basin or the Rio Grande aquifer. If it is connected, there may be legitimate concerns about impairment of other water rights. If it is not connected, then it is a finite supply and may not be reliable in the long term.

Other Notices of Intent: In addition to the Rio Puerco Basin, Notices of Intent to drill deep wells have been filed throughout the state. In 2007, Notices of Intent (NOIs) to appropriate 24,000 acre-feet under the deep well exemption were in effect and in 2008 an additional 9 notices were filed. Efforts were made to pass deep groundwater legislation in both of the 2007 and 2008 legislative sessions, but failed. During the 2009 Session, when renewed efforts to pass legislation appeared to be gaining momentum, 50 NOIs were filed prior to passage of the amended NMSA 1978, § 72-12-25, for a total of 64 NOI filings for 1,700,000 acre-feet per year of brackish water to be diverted from 607 wells. By comparison, the City of Albuquerque diverts about 100,000 acre-feet per year.

Water users adjacent to these projects are skeptical that the wells will not affect their water supply.

Future of Deep Groundwater

When considering plans for development of brackish water, the State Engineer is carefully considering scientific data with regard to whether the aquifer meets the requirements of NMSA 1978, § 72-12-25. This includes questions such as whether the top of the aquifer is below 2,500 feet; or whether there is connectivity to shallow groundwater; and whether the aquifer is entirely non-potable. Requirements for drilling, well construction, inspection and reporting are in effect for deep wells. The Office of the State Engineer (OSE) is now considering existing hydrogeologic information to carefully define deep basin boundaries and to determine where declaration of a groundwater basin is technically defensible. The OSE is also considering the legal implications of the NOIs filed before the 2009 amendment, the procedures for filing applications and for drilling and reporting for deep wells and is developing a well-defined process for deep groundwater development that protects existing rights and Compacts.

When local communities are making decisions regarding approval of new development to be supplied by deep non-potable groundwater, one important consideration is whether the use of deep groundwater is sustainable. Deep non-potable groundwater may not be receiving recharge from surface sources—in other words, it is a finite supply. Energy costs to pump from greater depths, to treat the brackish water and disposal of the concentrate are also important considerations.

By Paul Bossert, Esq. (2008)

Updated by Kari Olson, University of New Mexico School of Law, Class of 2014 (2012)

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Joanne Hilton, Hydrologist (Updates 2009)

Pat McCourt, City Manager, City of Alamogordo, New Mexico

DL Sanders, Chief Counsel, N.M. Office of the State Engineer

Jess Ward, Supervisor, District 1, N.M. Office of the State Engineer

Land Use and Water Supply

> "As Western cities come to grips with limited supplies, the role of local and state governments in promoting more sustainable growth will be a new chapter in the history of western water law and land use law."
>
> Lora Lucero and A. Dan Tarlock, "Water Supply and Urban Growth in New Mexico: Same Old, Same Old or a New Era?", *Natural Resources Journal,* Vol. 43, Summer 2003

As New Mexico grows and develops, there is a continuing increase in water demand and the need to provide additional supplies. Recent studies estimate the current population of the State to be about two million people, and the population is expected to grow to approximately 3,400,000 by 2050. Regional water plans project water demands for 16 regions within New Mexico. The total projected new water use associated with population growth—the public water supply and associated commercial sectors, exclusive of agriculture, mining, or other industries—ranges from 280,000 to 380,000 acre-feet per year of new water supply needed in the next 40 years. While there is uncertainty in these estimates, it is clear that there will be continuing pressure on our water resources. Accommodating this new growth and development, without adverse impacts to existing users and our river systems, will require careful land use and water management.

Land use decisions that direct the type and location of development that occurs are often made by local governing bodies, whereas most water management decisions are made at the State level. Besides local governments, land use can be affected by economics and broader policies, such as transportation, state, and federal agricultural policies; watershed management policies on state and federal land; and state and federal environmental regulation that have the potential to impact water quality. Land use decisions can potentially affect both water quantity and water quality; similarly, decisions regarding water management can potentially affect land use. Nevertheless, the decisions are not always well-coordinated, and it is difficult to integrate land use and water planning decisions on local, regional, and statewide levels.

Optimization of our land and water resources, while balancing sometimes conflicting goals such as protection of the environment, supporting economic growth and development, and respecting senior water rights, will require careful land use and water management decisions that integrate local, regional, and state wide goals and objectives.

Land use decisions can potentially affect both water quantity and water quality; similarly, decisions regarding water management can potentially affect land use. Nevertheless, the decisions are not always well-coordinated...

Land and Water Use Decision Making

Land and water use decisions are made by various levels of government including local, county, state, Tribal, and federal, and by private property owners. Some of the key existing regulations and programs affecting land and water use are discussed below.

Municipalities: Municipalities have planning and platting jurisdiction within their boundaries and, except for Albuquerque, have jurisdiction for the perimeter area beyond the municipal boundary to provide control over a reasonable growth area. Water supply is typically dealt with by the developer obtaining a certificate of water availability from a local water provider, obtaining a water right, or, in some cases, through drilling domestic wells. Smaller municipalities frequently do not have resources to conduct detailed land use or water availability studies. In many cases they may rely on existing utilities to state whether or not they will provide water service, but there is not always oversight to determine if the utility has the water rights and financial capacity to effectively expand services.

County Regulation: The local county commission through its zoning authority and the Subdivision Act govern subdivision development outside of municipalities. The Subdivision Act requires counties to adopt appropriate rules of procedure for approval of subdivision proposals. Prior to 1995, the Subdivision Act only required that the developer would provide information about local water availability and information about how water would be supplied.

The legislature amended the Act in 1995. Those revisions require counties to develop rules for quantifying a subdivision's water needs, assessing the availability of water to meet those needs, and conserving water for those subdivisions located within the County that are not inside incorporated municipal land. The revised statute requires the Office of the State Engineer (OSE) to evaluate whether a subdivision's water supply proposal conforms to county rules, whether the developer can complete the proposal, and whether water is available to fulfill the proposal. If the developer proposes to use domestic wells, the OSE does not evaluate whether the wells will impair other users. The 1995 revisions temporarily made the OSE's approval a mandatory prerequisite of subdivision approval. However, since 1997, a county commission can approve a subdivision against the OSE's recommendation. The Subdivision Act does not apply to incorporated municipalities within a county.

In addition to complying with the Subdivision Act, counties also give other direction affecting growth and land use. Counties typically develop countywide plans that guide development decisions. Zoning ordinances create more specific and binding guidance regarding land use, although zoning can be changed as well. Water availability or water quality protections are typically not concerns that are integrated into zoning decisions.

Role of the State: In addition to the OSE role in the subdivision water availability analysis, the OSE has many other roles related to the interface between land use and water. The OSE reviews transfers of water rights and applications for new appropriations, determines whether there is impairment of others' water rights, determines whether the application is contrary to water conservation, and considers the public welfare concerns associated with a proposed transfer or appropriation. The OSE reviews 40-year water development plans that are provided as part of a permit application and that are used to show that water rights held by municipalities and others should be allowed to be held for a period up to forty years without being subject to forfeiture for non-use.

Smaller municipalities frequently do not have resources to conduct detailed land use or water availability studies.

The Interstate Stream Commission (ISC) is the lead agency for the State Water Plan and oversees regional water planning activities. The State Water Plan recognizes the need to support a strong connection between water availability and land use decisions, including the need to develop land use regulations and design criteria that can be used to reduce future water consumption by limiting landscaped areas, requiring native or drought tolerant vegetation, and requiring low-flow water fixtures. The OSE and the ISC both play key roles in water management decisions in New Mexico.

The New Mexico Environment Department (NMED) is involved in numerous programs that monitor and protect the water quality of surface and groundwater supplies. Many land use decisions can potentially impact water quality. NMED, in general, does not have a direct role in land use decisions, though they do issue permits for certain types of facilities. Their role is to evaluate threats to water quality and to ensure compliance with environmental regulations.

Role of the Federal Government: While the federal government generally has no role in local land use decisions, they may have indirect impacts on land and water use. For example, the U.S. Department of Agriculture (USDA) and the U.S. Congress set agricultural policies through periodic updates to the Farm Bill. These policies impact agricultural practices through the economics of growing certain crops or through programs such as the Conservation Reserve Program , which compensates farmers for protecting certain lands enrolled in the program. These federal policies do not necessarily consider local or statewide water resources impacts. The U.S. Bureau of Reclamation (Reclamation) also plays a key role in water management in New Mexico, primarily through management of releases from some major reservoirs in the state, and in directing water management actions as needed for compliance with the Endangered Species Act (ESA). Large tracts of federal land managed by the U.S. Forest Service, the U.S. Bureau of Land Management, and the U.S. Department of Defense are located within watersheds that contribute to key water supplies in the state. Management actions on these federal lands have the potential to impact both water quantity and water quality of water resources that leave federal land and flow toward other users.

Tribes and Pueblos: Sovereign Tribes and Pueblos also play an important role in land and water management in New Mexico, due to their large land holdings within New Mexico as well as their senior water rights. These nations govern agricultural and other land use practices on their land, and undertake major construction activities and habitat restoration projects. They can adopt their own water quality standards and manage various water quality and environmental cleanup programs with approval from the U.S. Environmental Protection Agency.

Water availability or water quality protections are typically not concerns that are integrated into zoning decisions.

The Land and Water Problem

Land use and water management decisions are frequently made by different levels of government with different statutory authorities and sometimes-conflicting goals. This can lead to a disconnection between plans and results. Key problems regarding water and land issues in New Mexico are summarized below.

Water is a limited resource for which there is increasing demand**.** New Mexico is a semi-arid state with limited resources. Except for minor, unusual cases, all of the fresh water in New Mexico is appropriated, and any new use must rely on the discontinuance of an existing use. Limited new supplies, usually with poor water quality (salinity), where they are available, are extremely expensive to develop. Recent population and water use projections indicate the need to identify

significant new resources or discontinue existing uses, in order to accommodate new population growth successfully. Periodic drought and climate change resulting in increasing temperatures may exacerbate water supply shortages.

Land use approvals and water management decisions may not always consider the long-term effects on land, water availability, and water quality. New Mexico statutes assign responsibility for water administration to state agencies and delegate land use decisions to cities and counties. There is no formal structure for coordination between the two levels. State agencies often have limited staff resources and are not always able to complete detailed studies necessary to thoroughly address planning questions. Land use planning is conducted mainly by larger municipalities and counties and is often cost-prohibitive for smaller areas. Although there are some requirements to ensure water availability for new developments, there are many exemptions to the existing requirements, and different types of local agencies follow different procedures. The current methods of evaluating water supply for new development do not consistently take into account the cumulative, long-term impacts of previously approved subdivisions.

Land use approvals and water management decisions may not always consider the long-term effects on land, water availability, and water quality.

Water planning is not well connected to land use plans and regional water plans within the same river basins may not always be consistent with each other. Water planning is conducted at local, regional, and statewide levels. Most water plans make very broad assumptions about growth. They fail to connect specific patterns of land use with specific demands for water. Local and regional land use planning also tends to make only broad assumptions about water availability and water infrastructure needs, without accounting for the effects of the new water use on existing users or on other values associated with the water.

Strategies for Improved Land and Water Management

In order to ensure future economic vitality, support sustainable communities, protect the natural environment, maintain agricultural land, and preserve New Mexico's cultural heritage, some steps should be considered. Many actions can help to provide better coordination regarding land and water decision-making. Some of these key actions are:

Implement a State Planning Function: In the past, a bill has been proposed by the New Mexico Chapter of the American Planning Association to create a state planning office. The purpose of the state planning office would be to provide coordination among different planning activities at many different levels of governments. Such an office, or other type of organizational entity, would help provide improved communication regarding land and water planning functions that now occur at many different levels of government, often with no formal interaction. Specific tasks might include development of guidelines to achieve consistent population projections and provision of assistance to local governments in adhering to existing land use, environmental, and water laws. The office might help local governments research and address problems that are common to many of them, such as the problems created by antiquated subdivisions (*see below*). Finally, the planning office could provide coordination among state agencies regarding infrastructure decisions and policy objectives.

Revise the Subdivision Act and Municipal Codes: The State Water Plan recommends strengthening the OSE water availability review process. Significant progress has been made in the past several years to streamline and standardize the process, but several areas of improvement might be considered. One area would be to standardize the methodology for determining whether or not

there is water available to meet the annual water requirement as defined in the subdivision code. When counties or subdividers do their own analysis of water supply availability, there may not be consistent technical standards or criteria regarding issues such as long-term cumulative impacts. Standardization would provide clarity in regulations and assist developers in knowing what to expect. In addition, the current process that allows counties to approve subdivisions even when the OSE has issued a negative opinion regarding water availability should be examined. In some counties, hydrologists review the project and modify the proposed development based on the OSE opinion, but other counties don't have the resources. In any event, the county is not obligated to report back to the OSE. At a minimum, it would be useful to have a reporting mechanism to track the subdivisions that are approved when there has not been an adequate showing of a sufficient water supply to support the development.

Research and Address Antiquated Subdivisions: Antiquated subdivisions are obsolete subdivisions that have been approved and platted in the past, but have never been built and may not be built out for decades. They may not be in compliance with current regulatory standards for water supply and other infrastructure components. Evaluation of the implications of the subdivisions for water and other infrastructure is needed. This could be done by local governments where it is an issue, if sufficient resources are available. Alternatively, it could be undertaken by a State Planning Office if established, or through outside researchers such as a university or planning group.

Support Initiatives to Improve Quantitative Understanding of the Water Supply and Water Uses: The State Water Plan recognizes the need for improved metering and measuring. The OSE conducts an inventory of water use in the state every five years; however, for some sectors such as agriculture, there is not good metering data for much of the state, and water use must be estimated. In addition, while some groundwater resources have been well characterized with field tests and numerical models that can evaluate cumulative impacts of developments, in other areas, there are few field measurements and there is a poor understanding of parameters, such as recharge, that are important when considering sustainable development. There is a need for continued scientific study and consistent reporting of information to better inform land and water use decisions. State agencies need to have adequate resources to improve metering and monitoring efforts.

The State Water Plan recommends strengthening the OSE water availability review process.

Support Agricultural Policies Leading to Efficient Water Management: Since most of the water in the state is used for agriculture—about 75 percent, although that number varies from one region to another—many people consider transferring water from agriculture as a future safety net to meet the demands of growth. However, cyclical drought and climate change may reduce surface flows and reduce the amount available for agriculture. While a farmer may be able to use less water, with lower yields, in dry years, and continue to farm the next year, transfers to other industries or uses may not have flexibility. In addition to the need to protect farmland as a future food source and not decimate our rural communities, water transfers from agriculture may not be legally available in many cases. The legislature has provided protection to acequias, which enact bylaws seeking to protect their water rights from transfer. For more information, please see the "Acequias" chapter in this edition of *Water Matters!*. Furthermore, the 2009 legislature enacted a statute limiting the powers of municipalities to condemn agricultural water rights.

Domestic Wells: State and local policies and laws on domestic wells can have a huge impact on land use. The State Water Plan

recognized the importance of better regulation of domestic wells and in 2006, after a series of public meetings, the State Engineer adopted extensive new regulations which, among other major changes, limit the allowed use from a domestic well permit to one acre-foot annually per household. In 2013, the legislature passed two new bills that limit the use of domestic wells for supplying water to new subdivisions. For more information, please see the "Domestic Wells" chapter in this edition of *Water Matters!*.

Support of Watershed Restoration and Protection Initiatives: Local watershed groups have formed in many parts of the state, and there is a need for ongoing support and expansion of watershed initiatives. Watershed restoration programs can help to identify watershed concerns, many of which have the potential to affect water supply and/or quality. Climate change may increase the likelihood of catastrophic wildfire, which can severely degrade the water supply. Watershed groups can play a key role in riparian restoration and protection, which is a stated goal in many water and land use plans.

Water conservation is one of the most efficient mechanisms that can be used to balance gaps between supplies and demand.

Maximize Water Conservation for New Growth and Development: Water conservation is one of the most efficient mechanisms that can be used to balance gaps between supplies and demand. Revisions to the Statewide Building Code to add consistent statewide conservation measures would be helpful. Steps should be taken to ensure that new developments, as well as older areas, maximize storm water management for water quality and on-site water supply when feasible. Programs like the Leadership in Energy and Environmental Design (LEED) and other sustainability initiatives—such as appliance retrofits, xeriscaping, roof-top harvesting, and graywater and wastewater reuse—are all areas that deserve continued support and further development of programs.

Provide for Better Linkage between Planning Programs and Funding Sources: Water plans are prepared on a local, regional and statewide basis. Forty-year water development plans provide the information necessary to hold unused water rights for future expected beneficial use, whereas regional and state plans are more focused on broader issues and strategies. Comprehensive land use plans, as well as the existing water plans, are not enforceable and are frequently not consulted when local land-use decisions are being made. There is a need for better planning for water projects and programs that are carefully considered in statewide funding decisions. A comprehensive water planning program, such as exists in Texas, is one mechanism for linking water supply projects to funding resources. However, to do this effectively, Texas spends considerably more than has ever been considered for New Mexico programs. Creating a mechanism for funding long-term planning programs would be useful.

Support Ongoing Public Education Programs: Many New Mexico citizens are better informed about water issues now than in the past, yet there is a need to continually support public education programs. These programs can provide valuable information on topics such as water conservation, drought contingency planning, source water protection, and many other issues. When citizens are better informed about New Mexico water issues and costs, they can contribute to better decisions and are more likely to be supportive of water rates or budget allocations that are sufficient to address adequately the needed water projects. Watershed groups with strong public involvement have been successful in helping to address many water quality and riparian restoration issues around the state.

Recognize the Connection between Energy Development and Water Use: Some of our existing energy sources, such as coal-fired power plants, use large amounts of fresh water for cooling purposes. For example a coal-fired power plant uses 110 to 300 gallons per megawatt hour. In the western United States, Reclamation estimates that 98 percent of energy conservation goals can be met with 68 percent of the cost if water conservation is used as a strategy. There are lots of embedded energy costs in water use, such as the cost of pumping or heating the water. New renewable sources of energy, such as solar, can also be large users of water. For example, a solar parabolic trough plant uses 760 to 920 gallons per megawatt hour. When making decisions about bringing this type of energy development to New Mexico, consideration of water availability is important. Industries may be able to use substantially less water through alternative cooling processes, but there can be significant additional costs.

Conclusion

Improving land and water use decision-making to optimize and protect our limited resources will require good planning programs, coordination between different governmental entities, and reliance on well thought-out plans. Given what we know and what we don't know about New Mexico's future water supply and its variability, we have a responsibility to invest in good planning programs and to direct our activities towards the most feasible, cost effective and sustainable strategies.

This paper is based in part on a paper being developed by an informal group convened by Consuelo Bokum and 1000 Friends of New Mexico to study issues surrounding land use and water availability. Principal participants in the land and water group are: Conci Bokum, Susan Kelly, Sig Silber, Mary Helen Follingstad, Barbara Calef, Carol Romero Wirth, Alan Hamilton, and Kathy Holian. Many others have contributed.

By Susan Kelly, J.D. and
Joanne Hilton, Hydrologist (2009)

Given what we know and what we don't know about New Mexico's future water supply and its variability, we have a responsibility to invest in good planning programs and to direct our activities towards the most feasible, cost effective and sustainable strategies.

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Water Marketing

Water doesn't just flow around New Mexico in streams and rivers: it also moves around on paper. Since all of the state's surface-water and most of its groundwater have already been allocated, the only way for cities, developers, or conservation organizations to find new water supplies is to buy and transfer water rights from old uses and places to new uses and places. The N.M. Office of the State Engineer (OSE) approves each of these transfers, most of which are relatively small, but the numbers can add up over time. Between 1982 and 2011, for instance, 21,000 acre-feet of Middle Rio Grande water were transferred. Most of the transfers have been from agricultural rights to cities such as Albuquerque and Santa Fe. As increased drought, climate change, and population growth place additional demands on water managers, "ag-to-urban" water transfers will likely increase.

New Mexico Water Market

All that being said, strong, formal markets for water rights in New Mexico have not matured, and physical, legal, and political barriers have hampered their development. While the demand for water is high and transfers are legal and possible, New Mexico has yet to develop a high-efficiency, low-cost market. Water marketing is a complex subject and the answer to the question "is there an active water market in New Mexico?" is mixed.

Legally, a right to use water can be sold under the current law and those sales are occurring throughout the state. The OSE has consistently supported the potential of water marketing, and even included water markets as water management mechanisms in the State Water Plan. However, there are many caveats and conditions on such sales, and no formal marketing systems such as dedicated auctions, clearinghouses, or similar mechanisms exist. Currently, individuals or organizations wishing to buy or sell water rights must advertise on their own or go through a small private firm. Thus, while there is currently a "market", it does not have many of the support structures enjoyed by, and arguably necessary for, more formal goods markets.

While the demand for water is high and transfers are legal and possible, New Mexico has yet to develop a high-efficiency, low-cost market.

Transfer Process

There are different types of transfers of or "changes" to water rights in New Mexico. Owners of existing water rights may apply to change the point of diversion, place of use, purpose of use, or any combination of these elements. Most transfer applications occurring today are associated with applicants seeking to comply with offset conditions for existing municipal and industrial groundwater pumping permits.

In times of shortage, the water user with the oldest priority date is afforded a full supply. The user with the next oldest priority receives a full allotment and so forth until there is no more water to be distributed.

According to the OSE, a party wishing to transfer a right must apply to the agency and demonstrate that the proposed change will not 1) impair existing water rights, 2) be contrary to water conservation, and 3) be detrimental to the public welfare of the state. A subsequent notice procedure allows the public to file protests. If a protest is filed, the OSE Hearing Unit initiates the hearing process. Each individual application is reviewed by the OSE's Water Rights Division. The OSE quantifies and evaluates the potential hydrologic effects of a water right change and determines whether these effects may impair other existing water users' ability to continue exercising their rights. The State Engineer enters decisions on an individual basis, and these decisions may be appealed by any party to a district court.

According to the 2009–2011 Annual Report of the OSE and the New Mexico Interstate Stream Commission, the OSE Hearings Unit noted a "marked increase in the legal and technical complexity" of protested and aggrieved water rights application cases brought to hearing during the fiscal years 2010 and 2011. Most of the hearings concerned water transfers, although a few involved enforcement. According to the Report:

> During FY10, 81 new hearing matters were opened. During the same period, 118 matters were closed. Of the closed matters, final dispositive orders were entered for 38. The final orders include four applications granted in whole or in part, subject to conditions, eight applications denied, and 25 dismissed upon withdrawal; 82 cases were pending on the Hearing Unit's docket as of June 30, 2010. During FY11, 68 new hearing matters were opened. During the same period, 72 matters were closed. Of the closed matters, final dispositive orders were entered for 29. The final orders include one application granted in whole or in part, subject to conditions, nine applications denied, and 15 dismissed upon withdrawal; 78 cases were pending on the Hearing Unit's docket as of June 30, 2011.

Transfers and Priority

Water allocation in New Mexico operates generally on the "first in time, first in right" principle of the prior appropriation doctrine. In times of shortage, the water user with the oldest priority date is afforded a full supply. The user with the next oldest priority receives a full allotment and so forth until there is no more water to be distributed. Those rights that do not receive water are coined "paper rights"—the owner has a right on paper but cannot get wet water. Under state law, the priority date is based upon when the water was first put to beneficial use or, in the case of a permit, the date the application is filed. The priority of a water right defined by federal law, such as those of Tribes and Pueblos, is determined differently, but once determined, fits into the prior appropriation scheme for dealing with shortages.

The earlier the priority, the more valuable the water right because the owner is more likely to receive water during shortages. The year 1907 is important in New Mexico because it marks the passage of the Territorial

water code that began the organizing water usage in New Mexico. Many of these rights date back to Spanish land grants, first non-Indian settlers, and other "ancient" activities. When water rights are organized by priority, the earlier ones are referred to as "senior" rights, and the later ones are referred to as "junior" rights—all in relation to each other. Earlier rights are more alienable, and do not face many of the marketing issues that later rights suffer.

Water Distribution Entities

Water distribution entities deliver water to their member users and thus have an interest in marketing. Among these, the Middle Rio Grande Conservancy District and the Elephant Butte Irrigation District each allow for an internal leasing market, though neither arrangement is a true "formal market."

Neither internal market has seen a high level of success. This situation is not due to a lack of interest in leasing water rights; members of the agricultural sector are very interested in this type of opportunity. Historically, however, these internal leasing markets have restricted the use of the leased water to agricultural purposes. Elephant Butte Irrigation District is beginning to allow leases for environmental purposes, which may invigorate its internal market.

Barriers to Marketing

Water marketing is susceptible to physical, legal, and cost barriers. Since much of the surface and groundwater supplies in the state are physically fully allocated—and drought and climate change make many areas of the state effectively over-allocated—purchasing marketed paper-water is risky, as there may never be wet water to exercise the right. In addition the physical effects of a transfer on the surface and groundwater in both the move-from and move-to locations must be considered for physical impairment of other users' water rights.

Beyond priority, another important barrier is the legal uncertainty about the amount of water available for transfer due to the abundance of unlicensed and unadjudicated rights and/or a coherent and accurate metering system in the state. The level of certainty about the accuracy of the amount of water being offered for sale or lease varies. The amount of a state law water right depends, under the New Mexico Constitution, on the amount put to beneficial use. Documentation of beneficial use can be 1) a "declaration", that is a statement by an owner, filed with the State Engineer by a water right user; 2) a State Engineer permit which allows development of a water right up to a certain amount; 3) a State Engineer license which is issued after the Engineer investigates the beneficial use; or 4) a court decree.

Large areas of New Mexico have not been adjudicated by a court to formalize the elements of water rights. The State Engineer has licensed relatively few water rights, so it can be extremely difficult to be certain about the actual amounts of water available for sale or lease.

Each of these "proofs" is progressively more certain as to the amount and other elements of the offered right. As certainty about a right's elements increases, the risk to the buyer decreases, and the price may reflect the reduced risk. Large areas of New Mexico have not been adjudicated by a court to formalize the elements of water rights. The State Engineer has licensed relatively few water rights, so it can be extremely difficult to be certain about the actual amounts of water available for sale or lease. Metering can be helpful in this regard, where it is present. Meter reports of use can give some assurance as to the amount of water being used during the period a meter is in place, but it does not tell a buyer anything about the validity of a water right in the first place or the amount of water beneficially used prior to installation of the meter.

These barriers make advertising and sale of water right difficult; particularly when the surety of the right cannot be clearly

established. Often, the parties to the transaction must figure out how to establish the elements of the water right with sufficient accuracy to satisfy risk aversion. Costs can also be high where protest to the transfer are lodged, as the parties must then defend the transfer in a legal setting such as before the OSE Hearing Unit or district court if the State Engineer's decision is challenged. Legal barriers can, theoretically, be navigated in the current system. Yet, in practice, completing a transfer or lease can be difficult. Sales and leases occur, but the high transaction cost due to the murky nature of the rights can complicate the process. These expenses and uncertainties have an effect on the marketability of water rights.

There is no clearinghouse in New Mexico for tracking the sales of water, beyond the record of transfers at the Office of the State Engineer.

The legal system of prior appropriation for dealing with shortages has not been well tested. Calls by senior users for junior users to cease diversions are rare. Thus, it is unclear how well the system would function, for instance, if a large number of senior users placed a call on a powerful junior user, such as a municipality. While this possibility does not directly inhibit a market system, the uncertainty makes rights more difficult to market and transfer. Since the prior appropriation system, as applied, does not create guaranteed delivery of a quantity of water, marketing is hindered. This has not prevented sales from going through; but the lack guarantees increased transaction costs as buyers and sellers attempt to reduce risk, thus, hindering the economic functions and fluctuations of a healthy market regime.

Today's Market

There is no clearinghouse in New Mexico for tracking the sales of water, beyond the record of transfers at the Office of the State Engineer. The "Water Bank," a water brokerage house based in Albuquerque and Harwood Consulting, a Santa Fe firm, however, provided some information.

In June of 2012, water in the Middle Rio Grande was *selling* for about $15,000 an acre-foot of consumptive use, a price that includes transactional costs, which usually run about $5,000. Local experience indicates that prices are now lower at the turn of the year than they were last spring. At $12,000 per acre-foot, today's sellers prefer to sit on the sidelines and at $15,000 and above, sellers come to the market readily. Prices can be set by a host of reasons—personal, private or business—for needing cash. As buyers are willing to pay higher prices, more sellers come to the market. As prices decline, more buyers come to the market. In the experience of the Water Bank, *leased* agricultural water in the Middle Rio Grande Valley varies from about $100 to $300 per acre-foot per year. The price depends in part on the price of alfalfa, an important crop in the area.

Indian water rights settlements can also affect the market. It is believed by some that in the case of the *Aamodt* settlement and adjudication in the Nambe-Pojoaque-Tesuque stream system north of Santa Fe, the promise of water service to the Pueblos and south along Highway 85 have relaxed pressure on the prices within the community. The Pojoaque Regional System however, relies upon a transfer of water rights from the Top of the World Farms in the Taos area to the Pojoaque Basin and Santa Fe. It is feared that the transfer may adversely affect other water rights in Taos County. The State Engineer has not yet ruled on the transfer.

The movement of water rights within macro- and micro-markets is specialized. San Juan-Chama Project water, for instance, is imported to Heron Reservoir. A variety of entities have contracted for the right to use the water all the way down the Rio Grande to Elephant Butte Reservoir. More traditional water markets allow water to be purchased and sold within the Middle and Upper Rio Grande reaches of the river.

Smaller markets exist as well, such as within the Santa Fe County Water Utility.

In the Middle Rio Grande Valley, the City of Albuquerque set the market through the 1970s, '80s, and '90s. Then, a decade ago, when the computer chip maker Intel and the City of Rio Rancho were acquiring rights, prices rose to about $35,000 an acre-foot. Since the recession, the market in the central valley is again set by the prices Albuquerque is willing to pay for water—and they are about a third of what they were pre-recession. Santa Fe also witnessed similar spike during the mid-2000s.

New Mechanisms

As times change, new ways of water rights marketing in New Mexico are evolving. In 2012, a group of California Institute of Technology professors ran a water rights auction in New Mexico when the Jicarilla Apache Nation decided to lease some of its San Juan-Chama water rights. After conducting a market analysis and interviewing possible buyers, the group designed software to run an auction for the Tribe's water leases. Bidders remained anonymous during the bidding process but could observe the bidding activity. Once the auction ended, winners were given 60 days to decide how long to extend their leases. Water closed above the offering price, and there were multiple bidders and multiple winners.

Community Concerns

Agricultural water users often have longstanding water rights. Some fear markets will encourage water transfers away from agriculture. To clarify, many agricultural interests strongly support leasing, and market systems for leases, in which the right to use water is temporarily "rented" to another interested party. The permanent transfer of water, however, is seen as the removal of a key component of rural agricultural lifestyle. This sentiment can be found among both ranching and farming communities, and is especially strong in rural New Mexico.

The resistance to the sale of water out of agriculture is most clearly manifested in a New Mexico law that governs the transfer of water out of acequias. Acequias are an historic form of regional water governance, with community structure and ditch systems maintained by farmers and other users within the acequia community. Many acequias have been in place since the first Spanish settlers established themselves in the region. Because of this history, acequia members have water rights, which are attractive to potential buyers.

Acequias have the power under New Mexico law to block transfers of water rights away from the ditch. It takes water to move water and if too many owners have relinquished the right to use water out of the ditch, then there may not be enough water in the system to deliver to the last irrigator, the labor force required to maintain the ditch dwindles, placing an increased burden on other members. An acequia can fail with the loss of a relatively small percentage of members. On the other hand, owners may be left in a position where they are unable to or do not wish to continue using the rights, need the money, but are unable to sell their most valuable asset. There is a strong tension between individual property rights and the welfare of the community. This situation has made the acequia rights some of the most theoretically valuable and simultaneously difficult to market rights in New Mexico.

Acequias have the power under New Mexico law to block transfers of water rights away from the ditch. It takes water to move water.

Conclusion

While some scholars reject water markets as a viable tool for addressing the scarcity of water in New Mexico, the general consensus is that an efficient, user-friendly market system, with low transaction costs, would

benefit both the environment and economic sectors that require water. However, the barriers and lack of clearly defined rights make implementing such a market difficult. It is unlikely that this situation will change until external pressures surpass the resistance from entrenched users, especially in the agricultural sector. How soon this will happen is unclear and may depend on a variety of factors including climate change, long-term drought, and economic uncertainty for both farmers and cities.

By Jeremy Oat, University of New Mexico School of Law, Class of 2013, and Laura Paskus (2013)

While some scholars reject water markets as a viable tool for addressing the scarcity of water in New Mexico, the general consensus is that an efficient, user-friendly market system, with low transaction costs, would benefit both the environment and economic sectors that require water.

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Kyle Harwood, Owner, Harwood Consulting, Santa Fe

William Turner, Owner, Water Bank, Albuquerque

Water for New Mexico Rivers

> "Instream flow is just another water right that can be administered under the existing system of laws. You can do it in a way that avoids injury and you're not overturning the prior appropriation doctrine. It's a powerful tool to allow the states to be able to deal with endangered species, TMDLs and a whole bunch of other federal mandates."
>
> Tom Annear, Wyoming Game and Fish, Utton Center E-Flows Conference, 2010.

The Rio Grande, the Pecos, the Gila, the San Juan, the Canadian—New Mexico's rivers are synonymous with the state's culture and natural heritage. New Mexicans overwhelmingly care about the health of the state's rivers and that includes flows to support fish and river dependent wildlife. Rivers, wetlands, and riparian areas comprise a very small part of our landscape—a mere 1 percent. This 1 percent plays an essential role in renewing the state's water supply for its two million residents; for sustaining the state's second largest industry—tourism; for producing food and fiber; and for sustaining New Mexico's web of life. Eighty percent of all sensitive vertebrate species in New Mexico use riparian or aquatic habitats at some time during their life cycle. Two-thirds of the state's Important Bird Areas (IBAs) can be found along our rivers, which provide critical breeding, wintering, and stepping stone habitat during continental migration. For many New Mexicans, our rivers are considered sacred arteries that feed deep cultural connections to the land. For others, our rivers provide significant amenity and recreational values.

Los Pinos River
Photo by Susan Kelly

History of Flow Alteration

Since the early development of irrigation, humans have altered the natural flow of rivers. The extent of alteration has increased with population growth and economic development in the arid west. Large-scale water development projects, like the Elephant Butte Reservoir with a capacity to capture and store twice the annual flow of the entire river, became commonplace with the passage of the Reclamation Act of 1902 and the Flood Control Act of 1936. Today, the state's surface-waters are fully appropriated, and it is difficult to find a river in New Mexico that doesn't have significant changes to its natural flow patterns.

Some human uses actually sustain flows, such as downstream deliveries for municipal use

New Mexicans overwhelmingly care about the health of the state's rivers and that includes flows to support fish and river dependent wildlife.

and to satisfy Compact obligations or return flows from farm fields and municipal wastewater. Still, human uses on the whole have dramatically changed the pattern of flows in our rivers. The Rio Grande is a good example. The Middle Rio Grande in New Mexico has dams on both the mainstem and major tributaries. As a result of these dams and agricultural diversions, 100-year-peak and channel-forming flows have been cut by half. In the southern reach of the Rio Grande of New Mexico and West Texas, the annual volume of flows is one-tenth of pre-development flows. Elephant Butte and Caballo Reservoirs completely eliminate the historic peak spring floods downstream of the storage dams. The dams release a nearly constant hydrograph of high flows in late summer but discontinue any releases in winter months. The lowered groundwater table caused by intensive groundwater pumping continues to pull water from the river, thus reducing flows. Below El Paso, the river is nearly de-watered except for return flows from irrigated fields that supply a small base flow for the next 100 river-miles.

There is hope, however; freshwater ecosystems are some of the most resilient ecosystems on the planet—quick to recover when the essential components of natural flow regimes are restored.

Hydrograph of Rivers

Our native plant and animal life do best when the rivers they rely upon are managed to maintain or mimic natural flow patterns. Each component of a river's natural hydrograph—base flows, monsoon pulses, snowmelt surges, high flows, and large floods—is key to sustaining the integrity of a river's processes and functions. It is not possible to return to pre-development conditions but managing our rivers to recreate important components of their unique natural flow patterns can exert a very positive influence on the health of New Mexico's rivers. Mimicking a river's natural hydrograph is a much more efficient way to improve river health than providing minimum stream flows alone.

Non-native species enjoy a competitive advantage over native New Mexico species when natural flow patterns are altered. Existing alterations to the seasonality and the volume of flows currently impair the ecological viability of our rivers: 55 percent of New Mexico's native fish species are threatened, endangered, or already extinct; 31 percent of New Mexico's assessed stream miles have water quality impairments; and, 90 percent of New Mexico's original riparian forests no longer exist. There is hope, however; freshwater ecosystems are some of the most resilient ecosystems on the planet—quick to recover when the essential components of natural flow regimes are restored.

Unhealthy rivers don't just jeopardize New Mexico's fish and water-dependent wildlife; they make all New Mexicans more vulnerable. Healthy rivers are the original "green infrastructure," providing free services that would take millions of our tax dollars to replace. For example, healthy river systems store and release flood peaks, recharge groundwater, maintain channel capacity for water deliveries and flood flows, transport sediment through the system, and retain and remove pollutants protecting our drinking water supply.

Future Trends

Increasing climate variability—changes in the average temperature or amount of precipitation, or the seasonality of precipitation—could further stress the ecosystem health of our state rivers. Parts of New Mexico are likely to see greater limitations in water availability within the next generation (2050). As water demands exceed supply, it is likely that new infrastructure and interbasin transfers will be proposed, further jeopardizing river health. These projects should be carefully evaluated, since healthy rivers will boost New Mexico's

ability to adjust to a changing climate by attenuating the impacts of increased frequency and severity of droughts and floods. For this reason, when we consider new infrastructure projects, we should consider benefits to both people and ecological communities. Infrastructure projects should be designed and authorized to allow for multiple purposes and to operate under conditions of future variability. Vulnerability assessments for biodiversity and hydrologic alteration have been conducted in New Mexico and can help prioritize and focus our management and restoration of our rivers.

Water Rights

Historically, western water laws and policies did not contemplate dedication of water for rivers. Beginning in the 1970s, western states with a prior appropriation water rights system similar to New Mexico's began to recognize the importance of healthy rivers and to enact instream flow programs: Colorado and Montana in 1973 and Washington in 1974. Oregon followed suit in 1987. In 2001, Texas created a well-funded statewide instream flow program. Today, nine of the eleven continental states from the Pacific Ocean to the Rocky Mountains have statutory instream flow programs and sixteen of the eighteen states west of the 100th meridian recognize instream flow as a beneficial use. Implementation of these programs has been successful despite concerns about impairment of senior water rights and administrative challenges. The success of these instream flow programs is measured in thousands of permanent permits for instream flow across the West.

River Flows Benefit Landowners

One illustration of the success of western river flow programs is the State of Montana. There, river flows were championed by an alliance of ranchers and Trout Unlimited. As a result of their joint lobbying efforts, the Montana legislature broadened the state's instream flow program and permanently established it under Montana's water code. In Montana, instream flows have brought economic diversity and stable prosperity to ranchers through conservation, which keeps producers on the land and supports their stewardship of the land. Additional direct benefits to senior water rights holders from streamflow augmentation include protection of unused or conserved water rights from forfeiture, a market for temporary leases of water during low water years, and a decrease in the likelihood of federal intervention in states' water rights administration where flows benefit threatened and endangered species.

Historically, western water laws and policies did not contemplate dedication of water for rivers.

Legal Status in New Mexico

New Mexico lagged behind other western states in addressing instream flows until recently. From 1955 to 1990, N.M. State Engineer Steve Reynolds held steadfastly to the opinion that appropriation of surface-water under New Mexico law was dependent upon a diversion of water. During Reynolds' tenure, grassroots efforts to obtain legislative approval for a "non-diversionary" instream flow program failed to secure passage.

In 1998, the Attorney General of New Mexico issued an opinion stating there is nothing in the New Mexico Constitution, statutes, or case law barring the State Engineer from approving an application to change the purpose of use of an existing water right to instream flow. The opinion concluded that New Mexico law does not

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In 2005, the state legislature enacted the Strategic Water Reserve, authorizing the ISC to dedicate water to river flows and implicitly recognizing that water for fish and wildlife is a beneficial use under New Mexico law.

require a diversion to beneficially use water and a court would likely define beneficial use to reflect current concepts of public interest, waste, and reasonable use. The Office of the State Engineer (OSE) indicated, in a parallel memorandum, that it could act favorably on an application for instream flow if there was sufficient dominion and control over the flow, such as accurate and continuous gauging devices to perfect the right and demonstrate continued use of the water. As a result, the Attorney General limited the reach of its opinion to applications for instream use with substantial metering but suggested a court of law could more broadly interpret the state's statutory requirement of "constructed works."

Since the Attorney General's opinion, significant changes in the state's water law, regulations and practice have culminated in the application of water rights for the benefit of fish and wildlife. Following on the heels of the Attorney General's Opinion, the state was hit with record drought and the surface flows on the Pecos River and Rio Grande were inadequate to support native fish protected under the Endangered Species Act. In 1999 and from 2001 to 2004, the OSE granted permits to the Bureau of Reclamation and the N.M. Interstate Stream Commission (ISC) for the release of water from reservoirs to augment stream flows for endangered fish species on the Pecos River and Rio Grande.

Strategic Water Reserve

In 2005, the state legislature enacted the Strategic Water Reserve, authorizing the ISC to dedicate water to river flows and implicitly recognizing that water for fish and wildlife is a beneficial use under New Mexico law. The Strategic Water Reserve authorizes the ISC to use reserved water or water rights to benefit listed species and to avoid additional listings of species. NMSA 1978, § 72-14-3.3(B)(2) (2005). That same year, the OSE amended the regulatory definition of "beneficial use" to include "fish and wildlife." NMAC § 19.26.2.7(D). In 2008, the ISC utilized the Strategic Water Reserve for the benefit of a listed species for the first time. The OSE granted a permit to the ISC to divert groundwater to augment flow in the Pecos River for the federally threatened Pecos Bluntnose Shiner. For more information, please see the chapter "Strategic Water Reserve" in this edition of *Water Matters!*.

Other Programs in New Mexico

In 2009, the OSE authorized federal and private water rights holders to leave water instream for the benefit of the federally protected Chihuahua Chub under a rarely used water conservation statute. NMSA 1978, § 72-5-28(G). Under this law, water right owners may enroll in a State Engineer approved water conservation plan allowing them to fallow acreage and not divert from a stream or well. This strategy protects the owners from forfeiture or abandonment of their water rights and can result in increased river flows. Originally conceived as a mechanism to facilitate water conservation and allow water right holders to avoid forfeiture from non-use, the statutory program is a unique tool in New Mexico's river flow toolbox.

Another effort underway is the establishment of an environmental water transaction program in the U.S. Bureau of Reclamation's Rio Grande Project located in southern New Mexico and western Texas. Under voluntary agreements with existing water right owners, water rights can be suspended from application to existing irrigated acreage and transferred to riparian habitat. Water will be diverted or pumped from the river to irrigate native trees, shrubs, and grasses much like an irrigated commercial crop. Private and/or public funding will be used to pay for the water and water rights. All voluntary

suspension and transfers will require the approval of the Elephant Butte Irrigation District Board.

A more far-reaching proposal under discussion in the Rio Grande Project is to temporarily lease a block of water on a periodic basis for a peak release to mimic the historic spring floods along a 105-mile reach of the Rio Grande below the Elephant Butte Dam. Benefits of flood flows to the river ecosystem include enhanced biologic productivity, nutrient cycling, leaching of salts, enhanced channel dynamics and maintenance, and sediment transport. Authority for non-agricultural use of water in the Rio Grande Project is permitted under the Miscellaneous Purposes Act of 1920.

From 2007 to 2011, the legislature appropriated almost $8 million for 47 community-supported river and watershed restoration projects statewide. These projects are led by a broad array of New Mexican entities including irrigation districts, soil and water conservation districts, municipalities, Pueblos, watershed groups, and other non-profits. In just the first two years of funding, the River Ecosystem Restoration Initiative benefited over 2,000 riparian acres and 30 river miles in 17 counties, created 222 restoration-related jobs in the private sector, and matched state appropriations dollar-for-dollar in federal and private funding or in-kind services. The positive effects of this initiative are apparent in every corner of the state. The totality of these efforts over the last decade reflects both the physical and the economic benefits of restoring altered river flows and New Mexicans resourcefulness in sustaining river ecosystem health in a state where political support for river flows is not robust.

In August of 2013, Governor Martinez announced that she would be pursuing $1.5 million in capital outlay funding for a new river restoration program, to be known as the New Mexico River Steward Program. When she announced this new program, the governor challenged all New Mexico communities to use their existing resources to protect river habitats.

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Next Steps for New Mexico

The Utton Center sponsored a well-received workshop on environmental flows in March of 2010 in partnership with Rio Grande Restoration and a number of other groups. Representatives of state agencies attended, as well as several state legislators. There were presentations on the programs in other Western states, both from a policy and scientific perspective, discussions among stakeholder groups, and presentations on New Mexico's programs. A common theme was that New Mexico is hindered by not having staff dedicated to making progress on these issues: functions are spread out among N.M. Department of Game and Fish, N.M. Environment Department, the OSE, and the ISC. Clarification of agency responsibilities and better coordination and collaboration on river health issues among state natural resource agencies could assist in the progress.

By obtaining a better understanding of the state's rivers, actions can be focused in areas where most needed and feasible to achieve success. When resources allow, this information must be well integrated in the activities of the State agencies and in basin wide, state, and regional water plans. Finally, reliable legislative funding of the Strategic Water Reserve and the governor's new River Steward Program could empower the State to take advantage of opportunities to improve river flows and support community-based restoration of instream ecosystem function and watershed health when they arise.

By Beth Bardwell, Director of Freshwater Conservation, Audubon New Mexico (2011)

Latest Update by
Adrian Oglesby, Esq. (2013)

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> "I ask all of you, how effective our efforts to provide a sustainable water supply can be if we do not have the support and tools to ensure that water quality is safe and clean?"
>
> Marcy Leavitt,
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Water Quality Regulation

While many of the water issues in New Mexico center around having an adequate supply of water, the quality of the water is just as important as the quantity in supplying water for drinking and other uses that rely on clean water. Protecting water quality is financially more feasible than conducting expensive cleanup programs. New Mexico has a strong interest in water quality regulation to protect public health and the environment and to minimize expenditures for mitigation of contaminated supplies. Water quality is a difficult subject to navigate; there is a complex web of statutes and agency involvement. This paper is intended to be a quick reference guide to an extremely complex topic.

The New Mexico Water Quality Act was adopted in 1967. The Act provides authority for water quality management in New Mexico. This law establishes the Water Quality Control Commission (WQCC) and defines its authority to adopt water quality standards and to direct programs consistent with the federal Clean Water Act.

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and for setting standards for surface-water quality. The Clean Water Act is primarily implemented by the states, but the Environmental Protection Agency (EPA) remains responsible for establishing safe levels of contaminants, establishing policy and guidance for surface water quality programs, pursuing cleanup of contaminated Superfund and other toxic sites (usually in conjunction with the states), and overseeing grant and loan programs to provide funding for various water quality programs. In New Mexico, the State lacks "primacy" for issuing permits (discussed below). The federal Safe Drinking Water Act regulates community drinking water systems to ensure safe, treated drinking water for public health.

The New Mexico Water Quality Management Plan (available on the NMED website) provides a concise summary of the water quality management system in New Mexico and fulfills the requirements of § 74-6-4.B of the New Mexico Water Quality Act that the State maintain a comprehensive water quality management program. It also fulfills the requirements of § 208 (area-wide waste treatment management plans) and § 303 (Continuing Planning Process) of the federal Clean Water Act.

Water quality is a difficult subject to navigate; there is a complex web of statutes and agency involvement.

Categories of Water Quality Protection

Sources of water quality problems can be linked to three main categories:

- Point source discharges include releases of potential contaminants to surface or groundwater. These include sewage treatment plants, industrial discharges, landfills, mine sites, or any other discreet source of contamination.
- Nonpoint source discharges from diffuse sources include septic tanks, livestock grazing, erosion from road construction, rural and urban storm water runoff, and sediment arising from forest fires. Return flows from agriculture are exempt from the CWA.
- Natural geologic or atmospheric conditions may cause constituents to exceed water quality standards in some locations.

New Mexico Water Quality Control Commission

The New Mexico WQCC is the water pollution control agency for all purposes of the federal Clean Water Act and for the wellhead protection and sole source aquifer programs of the federal Safe Drinking Water Act. The WQCC also administers and enforces the New Mexico Utility Operator Certification Act. The duties and powers of the WQCC include adoption of a comprehensive water quality management program, the development of a continuing planning process, the administration of loans and grants from the federal government, the adoption of water quality standards, and the adoption of regulations to prevent or abate water pollution. In addition to its formal rule-making role, the WQCC serves as a forum to facilitate and advance a statewide policy dialogue on important water quality topics. It also serves a role in quasi-judicial administrative hearings concerning appeals of certain agency decisions, such as permitting actions and adoption of regulations.

Members of the WQCC include representatives from the Environment Department, Department of Game and Fish, Office of the State Engineer, Oil Conservation Commission, State Parks Division, Department of Agriculture, Soil and Water Conservation Commission, Bureau of Geology and Mineral Resources, Health Department, one representative of municipal or county government, and three members of the public appointed by the governor. Most of the current members are technical professionals with extensive experience in water quality issues.

New Mexico Environment Department

The New Mexico Environment Department (NMED) is responsible for maintaining, restoring, and improving the quality of the state's waters and assuring that safe drinking water is provided from public water systems. NMED is the agency that implements and enforces the regulations adopted by the WQCC. By statute the NMED is authorized to act as staff to the WQCC in proceedings other than adjudicatory or appellate proceedings in which the NMED is a party. The WQCC has assigned the NMED responsibility for assisting in developing water quality classifications and standards, regulating discharges, permitting of wastewater treatment facilities, and undertaking monitoring and enforcement of the statutes and permits.

There are a number of programs within the N.M. Environment Department that deal with water quality issues:

The Drinking Water Bureau oversees public drinking water systems to ensure that water quality delivered to the public meets EPA standards. The Bureau provides technical assistance and community outreach

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throughout New Mexico to help systems meet water quality goals and develop technical, managerial, and financial capacity. The Drinking Water Bureau also oversees source water protection programs for the state and is the agency responsible for assisting New Mexico drinking water systems with compliance with the federal Safe Drinking Water Act.

The *Surface Water Quality Bureau's* mission is to preserve, protect, and improve New Mexico's surface water quality for present and future generations. The Surface Water Quality Bureau oversees implementation of the Clean Water Act in New Mexico, including periodic updates of water quality standards, monitoring and assessment, listing of impaired waters, and development of Total Maximum Daily Load (TMDL) regulations to meet water quality standards. The Bureau also directs programs aimed at addressing nonpoint source contamination through funding and voluntary watershed restoration efforts, and conducts compliance inspections of permitted wastewater dischargers on behalf of the EPA. New Mexico is one of only four states that do not have primacy under the Clean Water Act for issuing National Pollutant Discharge Elimination System (NPDES) permits for point source discharges, most of which are municipal discharges in New Mexico.

The *Ground Water Quality Bureau* (GWQ Bureau) protects the environmental quality of New Mexico's groundwater resources and is responsible for identifying, investigating, and cleaning-up contaminated sites, which pose significant risks to human health and the environment. The GWQ Bureau issues Groundwater Discharge Permits (pollution prevention permits); implements the NMED's responsibilities under the N.M. Mining Act to ensure that environmental issues are addressed and standards are met; oversees groundwater investigation and remediation activities; identifies, investigates, and remediates inactive hazardous waste sites through implementation of the federal Superfund program; oversees agreements between the State and responsible parties;

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and implements the Voluntary Remediation Program. The GWQ Bureau increases industry and public understanding of the importance of safe groundwater supplies and the importance of protecting groundwater quality through pollution prevention initiatives.

NMED also oversees water quality management planning; manages state and federal construction grant and loan assistance programs which provide financial support to municipalities for construction or improvement of wastewater treatment facilities; and provides technical assistance to local governments regarding water and wastewater treatment.

Other bureaus of NMED that also deal at least in part with water quality issues include the *Hazardous Waste Bureau, the Petroleum Storage Tank Bureau, the Solid Waste Bureau, and the N.M. Department of Energy (DOE) Oversight Bureau.*

Other Entities Responsible for Water Quality Regulation

In addition to the N.M. Environment Department, a number of other entities are involved in the oversight of water quality programs, including Tribes, Pueblos, and various federal and state agencies.

Under the federal Clean Water Act § 518(e), *Indian Tribes and Pueblos* are treated as states, allowing them to adopt water quality standards and to administer programs similar to those carried out by the N.M. Environment Department. Tribes can be treated as states if they have governmental and management capacity to administer

water quality programs on their lands. Many of the Tribes and Pueblos in New Mexico have adopted water quality standards, which may differ from State standards, and have active water quality monitoring and protection programs.

The *U.S. Army Corps of Engineers (Corps)* oversees permitting under Section 404 of the federal Clean Water Act, which regulates the discharge of dredged, excavated, or fill material in wetlands, streams, rivers, and other U.S. waters. The Corps is authorized to issue Section 404 Permits for certain activities including construction of ponds, embankments, bridges, stream channelization, or other activities that have the potential to introduce sediment or other chemicals into water. The Surface Water Quality Bureau is responsible for certifying that the 404 permits issued by the Corps protect the state's water quality.

The *N.M. Energy, Minerals and Natural Resources Department* includes the *Oil Conservation Division (OCD)* which plays a role in regulating water quality in New Mexico. The OCD oversees compliance with environmental regulations pertaining to oil and gas operations in the state. The relationship between the work of OCD and that of the WQCC has been in the foreground recently due to the new "Pit rules."

There are 47 *Soil and Water Conservation Districts* in New Mexico. Soil and Water Conservation Districts (SWCDs) are independent subdivisions of the state, governed by boards consisting of local landowners and residents elected or appointed for four-year terms. The N.M. Soil and Water Conservation District Act authorized SWCDs to conserve and develop the natural resources of the state, provide for flood control, preserve wildlife, protect the tax base, and promote the health, safety, and general welfare of the people of New Mexico. SWCDs coordinate assistance from all available sources—public and private, local, state, and federal—in an effort to develop locally driven solutions to natural resource concerns including water quality protection.

Many of the Tribes and Pueblos in New Mexico have adopted water quality standards, which may differ from State standards, and have active water quality monitoring and protection programs.

Current Water Quality Issues

There are many water concerns and ongoing management issues in New Mexico. Some of the key pressing issues include: dairy regulation; water quality in the Rio Grande that is beginning to provide public drinking water supplies for Albuquerque and Santa Fe; arsenic in drinking water; mining, oil and gas impacts on water quality; and contamination from various industrial sites and other sources.

Dairy Regulation: There are more than 200 dairies in New Mexico, producing milk from more than 350,000 cows. Many of the dairy operations are confined animal feeding operations (CAFO) where up to 2,000 cows are contained in a feedlot to produce milk. The large concentration of cows creates tremendous volumes of wastewater.

In December 2010, the WQCC adopted new regulations, the "Dairy Rule," for the dairy industry and for the protection of groundwater quality. These regulations require specific measures to control discharges at dairy facilities. In 2011, the WQCC adopted amendments proposed by NMED, the dairy industry, and a coalition representing citizens and environmental groups following negotiations. The regulations include provisions for groundwater and other monitoring requirements; synthetic lining of new impoundments; measurement of discharge volumes using flow meters; and backflow prevention measures to protect cross-connected supply wells.

The GWQ Bureau began permitting dairy facilities under the newly amended rule in 2012. Under the rule, all expired dairy discharge permits will be addressed within an 18-month period. By December of 2012, the GWQ Bureau had proposed 65 draft permits for comment and 15 permits have been finalized and issued. In the fall of 2012, the dairy industry proposed additional amendments to the Dairy Rule. The hearing on the amendments was scheduled for January of 2013 but postponed. In August of 2013, the N.M. Water Quality Control Commission set a March 2014 meeting to hear the dairy industry's petition to substantially weaken groundwater discharge rules.

Rio Grande Water Quality: With Albuquerque and Santa Fe switching to drinking water systems reliant on surface water from the Rio Grande, there has been increasing interest in the quality of river water. Plutonium and radionuclides have been detected in runoff from Los Alamos Canyon below Los Alamos National Laboratory (LANL), as it flows toward the Rio Grande. DOE has an active program to characterize and remediate sources of contamination from historic laboratory operations, yet there has been concern about the potential for these contaminants to eventually affect drinking water supplies. A study conducted by the University of New Mexico concluded that detections of radionuclides and other parameters that exceeded standards in the Rio Grande were relatively infrequent and could be effectively removed at the Buckman Direct Diversion (BDD) and Albuquerque Bernalillo Water Utility Authority (ABCWUA) treatment plants. Exceptions can be traced to storm events and turbidity in the river, and provisions can be made to avoid intake during storm events.

Polychlorinated Biphenyls (PCBs) have also been detected in samples collected from the bed of the Rio Grande. The PCBs were below the maximum contaminant level (MCL) established for drinking water but were above New Mexico's human health and wildlife habitat criteria. The source of the PCBs has not yet been fully identified. NMED believes that they are coming from surface runoff in the Albuquerque area. PCBs are large compounds that can easily be removed in drinking water treatment plants, but their presence may be detrimental to fish and other aquatic species. PCBs were used in hundreds of industrial and commercial applications. The manufacture of PCBs in the United States was banned in 1979. Further sampling and analyses will be conducted by the storm water management agencies in the Albuquerque area as a condition of their EPA storm water permit. The intent is to locate significant sources of PCBs within the urban watershed.

Other monitoring has detected pharmaceutical compounds in the drains and ditches that flow to the Rio Grande. Compounds detected included low levels of pain relievers, insecticides, and other contaminants. While these compounds may be effectively removed at the drinking water treatment plant, they remain a concern for fish and wildlife.

Other monitoring has detected pharmaceutical compounds in the drains and ditches that flow to the Rio Grande. Compounds detected included low levels of pain relievers, insecticides, and other contaminants. While these compounds may be effectively removed at the drinking water treatment plant, they remain a concern for fish and wildlife. Additional study is needed to fully understand this issue. The ABCWUA has active programs to prevent pharmaceuticals from entering the river and is continuing to monitor this issue.

Coliform bacteria have periodically been detected in the Rio Grande; studies have linked some of the bacteria to wildlife sources. A large nonpoint source study is proceeding in the Lower Rio Grande, where bacterial contamination is a concern because of the food crops grown in the area, to identify sources and remedies for bacterial contamination.

The Middle Rio Grande area is involved in one of three national pilot programs for watershed-based permitting. The pilot process has a geographic focus with government, public interest groups, industry, academic institutions, private landowners, and concerned citizens providing input on the development of a permit for point source discharges that considers the watershed, rather than individual permits.

Arsenic and Other Natural Contaminants: Arsenic is an odorless element that is present in many drinking water supplies in New Mexico due to natural geologic conditions, particularly in materials with volcanic origins. This element has been linked to cancer. In 2000, EPA lowered the arsenic standard for drinking water to 10 parts per billion to protect consumers. Many drinking water systems in New Mexico are continuing to implement upgrades to treatment processes to comply with the new standard.

There have been isolated detections of uranium, above drinking water standards, in groundwater due to natural sources in Espanola and the Pojoaque Valleys, in some wells in the Santa Fe area, other locations along the Rio Grande, and elsewhere in New Mexico. Much of the deep groundwater, and some shallower groundwater, has a naturally high mineral content. For more information, please see the chapter "Deep Water Regulation" in this edition of *Water Matters!*. Individual drinking water systems must deal with naturally occurring constituents through blending and treatment to ensure compliance with drinking water standards.

High levels of salinity are also an issue in the Rio Grande and the Pecos River in the southern part of the state. Technical studies have indicated that much of the salinity is due to natural discharge of saline groundwater.

Arsenic is an odorless element that is present in many drinking water supplies in New Mexico due to natural geologic conditions, particularly in materials with volcanic origins.

Mining Impacts on Water Quality: New Mexico has a long history of mining for copper, molybdenum, uranium, coal, and other resources. There has also been considerable activity in oil and gas extraction, including coal bed methane, both historically and recently. These activities have been important economic contributors in New Mexico.

There are currently about 400 permitted mining operations in New Mexico. The N.M. Mining Act of 1993 provides for permitting, monitoring, and closure of hardrock mines in the state. The Act requires reclamation bonds to ensure proper closure. Some of the key current concerns with mining impacts on water quality include:

- *Uranium*: Uranium mining in New Mexico during and after World War II was significant, particularly in the western part of the state near Grants. Most uranium mining in the state ended by the 1980s, but recently there has been renewed interest in uranium mining and in cleaning up legacy uranium sites throughout the northwestern part of the state. Abandoned mines continue to present potential threats to water quality.
- *Coal*: There has been concern about water quality degradation from coal ash disposal in the San Juan Basin. The EPA is considering new rules for disposal of coal combustion, which would affect operations in New Mexico.
- *Oil and Gas*: In 2007, the WQCC adopted new Pit rules designed to protect water quality from oil and gas operations. The Pit rules require a hydrogeologic report that provides sufficient information and detail on a site's topography, soils, geology, surface hydrology, and groundwater hydrology to enable the OCD to evaluate the actual and potential effects on soils, surface-water, and groundwater. The rules also

require detailed information on dike protection and include siting requirements that prevent pits where groundwater is less than 50 feet below the surface, within 300 feet of a water body, or within 500 feet of a well or wetland. The rules also include closure requirements and long-term sampling.

- *Copper and Molybdenum Mines*: Large copper mining operations in the southwestern part of the state and a molybdenum mine along the Red River in northern New Mexico have contributed to surface-water and groundwater contamination. In January of 2012, NMED initiated development of rules specific to copper mines pursuant to 2009 legislation requiring industry-specific rules for dairies and copper mines. The molybdenum mine was recently listed as a Superfund site. Cleanup of these operations is being overseen by the NMED.

Other Spills and Contaminated Sites: There are numerous industrial, mining, and commercial sites around New Mexico that are currently being monitored and in some cases have been remediated. There are currently 14 listed Superfund sites in New Mexico that are in various stages of investigation and remediation. The Superfund program is designed to address contamination from uncontrolled hazardous waste sites. Additional sites are being addressed by the NMED Ground Water Quality, Petroleum Storage Tank, and Solid Waste Bureaus. Many of the sites are contaminated due to earlier activities that failed to protect ground and surface water. For example, gas stations that were in operation prior to requirements for double-walled gas tanks were much more likely to have releases of chemicals into water supplies. Some of these are still actively being remediated. Information on petroleum storage tank sites, landfills, and other contaminated sites, including status of cleanup, is available at the NMED website.

There are numerous industrial, mining, and commercial sites around New Mexico that are currently being monitored and in some cases have been remediated.

One very large current concern is a jet fuel spill from the Kirtland Air Force Base that could include as much as 8 million gallons of fuel that have leaked from underground pipes over a period of decades. The fuel has reached the groundwater aquifer and is moving toward drinking water supply wells. Monitoring for low levels of Ethylene Dibromide (EDB), a mobile indicator that can provide an early warning of the presence of jet fuel, is ongoing. As EDB is no longer in use as a fuel additive, its presence is an indicator that this is a historic problem.

Surface and groundwater standards have also been exceeded in New Mexico waters due to nonpoint sources. Septic tanks have impacted shallow groundwater in numerous locations, and erosion and sedimentation from roads and livestock grazing are also common issues. Statewide septic tank regulations were updated by NMED in 2005. The new regulations may require more stringent treatment depending on lot size and soil and groundwater conditions. While these regulations are more protective of groundwater, there are older areas around the state where septic tanks continue to be a source of groundwater contamination. In urbanized Bernalillo County, all septic systems must be brought up to code by 2015.

Conclusion

As we come to terms with the limits of New Mexico's water supply, the *quality* of our water will become increasingly important. Many activities are important: sampling, testing, and monitoring; developing appropriate regulations and enforcement mechanisms to protect water quality; and providing for treatment and remediation of contamination. Allocating sufficient resources for these activities is a challenge,

but one that is imperative to address. In the end, regulations and policies designed to prevent groundwater contamination are generally less expensive to administer than treatment and remediation programs after contamination occurs.

By Joanne Hilton, Hydrologist, and Susan Kelly, J.D.

Latest Update by James Hogan, Kimberly Kirby, and Jerry Schoeppner (2012)

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James Hogan, Acting Bureau Chief, Surface Water Quality Bureau NMED

Kimberly Kirby, NMED

Jerry Schoeppner, Chief, Groundwater Bureau, NMED

Inter-basin Water Transfers

> "Upon initial consideration, interbasin transfer of water has enormous appeal. Indeed, many of the regional water plans offer vague references to receiving water from adjacent basins. However, a more thorough examination reveals that there are often few details to support these transfers..."
>
> Professor Bruce Thomson, Department of Civil Engineering, University of New Mexico (2010)

Inter-basin water transfers move water from one watershed to another. As droughts constrict the availability of water, and cities grow larger and thirstier, such transfers are increasingly being eyed as a solution. Although inter-basin transfers usually do not increase the overall availability of water in a state, they can move water to where it is needed most. Some of the main proponents of inter-basin transfers are pro-growth city and state governments as the re-allocation of water across watersheds allows for flexibility in planning for future growth.

The Western Governors Association, for example, issued the following policy statement in 2011, "Western Governors believe states should identify and promote innovative ways to allow water transfers from agricultural to other uses (including urban, energy, and environmental) while avoiding or mitigating damages to economies and communities." In addition to the predominant movement of water from agricultural to industrial use, water is also being transferred for energy development needs, ranging from renewable energy to hydraulic fracturing. A 2012 report by the Western Governors Association and the Western States Water Council predicts that the energy sector will be an increasingly important driver for transfers in the coming decade. According to the same report, farmers have used transfers to supplement drought-strained water supplies, offset the impacts of water withdrawals, and enhance their economic stability by leasing or selling water. In addition, conservation groups and federal resource managers in Western states are increasingly looking to transfers to augment in-stream flows for fish and wildlife, including threatened and endangered species.

Inter-basin water transfers move water from one watershed to another. As droughts constrict the availability of water, and cities grow larger and thirstier, such transfers are increasingly being eyed as a solution.

Concerns about inter-basin transfers often arise from rural communities in the "area of origin" (i.e., the location from which water is being removed). Fallowed agricultural lands can contribute to dust problems, encourage the proliferation of invasive weeds, and thereby increase the risk of fire. Transferring water from agricultural areas on a large scale raises concerns for proponents of local food and farmers' markets and those concerned about food security. Additional misgivings come from environmentalists, who surmise that where there is a lack of legal protections for in-stream flows, water-dependent ecosystems will literally be left high and dry when water is transferred.

In New Mexico, a recent failed attempt to pass legislation regulating inter-basin transfers highlighted both the perceived lack of regulation of large transfers and the institutional unwillingness to add hurdles, especially cost, for water transfer applications. In the absence of such legislation, New Mexico's legal landscape contains limited roadblocks to inter-basin transfers.

Furthermore, in some ways, inter-basin transfers embody a significant orientation toward the concept of beneficial use, on which our statutory and common-law water system is built. In order to address concerns about inter-basin transfers, other Western states have strengthened protections both for areas of origin and receiving watersheds, using a combination of area-of-origin protections, compensation schemes, and other statutory tools. These methods may be instructive if New Mexico chooses to more closely regulate transfers in the future.

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New Mexico's Legal and Political Landscape

New Mexico statutes expressly recognize that the right to use water upon certain lands "may be severed from such lands and become appurtenant to other lands, or may be transferred for other purposes and other uses." This principle has become ingrained in New Mexico water law, allowing for a persistent bias in favor of water transfers.

Under current New Mexico law, the approval of inter-basin water transfers rests with the Office of the State Engineer, which, within certain statutory limits, retains the sole discretion to approve or deny such transfers. The State Engineer uses three primary criteria to evaluate all transfer applications, which have been expanded and clarified in New Mexico's courts. The State Engineer must reject applications that are: 1) likely to impair existing valid water rights, 2) contrary to conservation of water within the state, and 3) detrimental to the public welfare of the state. State Engineer decisions on any water rights applications, including transfers, are fully reviewable by the New Mexico Courts.

Under an impairment analysis, all other considerations are moot for the State Engineer if water is not available for a transfer, i.e., if all the water in a basin or area has already been appropriated to other users or not enough unappropriated water remains to fulfill the application.

NM Senate Bill 77 (2014)—

Proposed regulation for the application process for the diversion of water from the basin of origin for use outside the basin of origin

New Mexico senators Timothy Keller and Brian Egolf Jr., introduced a bill to regulate inter-basin transfers in the 2014 Legislative Session. The bill would have required the State Engineer to use eleven explicit criteria when evaluating applications for inter-basin transfers exceeding 1,000 acre-feet per year. The bill, if passed, would have required legislative approval for transfers exceeding 7,000 acre-feet per year. The eleven criteria represent current concerns about water transfers in New Mexico:

1. the amount of water in the basin of origin available for future appropriation;
2. present and reasonably foreseeable projected future needs for water in the basin of origin and the receiving basin;
3. benefits presently and prospectively derived from the return flow of water used within the basin of origin that will be eliminated by the proposed out-of-basin use;
4. the correlation between surface water and groundwater in the basin of origin;
5. interference with planned uses or developments within the basin of origin for which a permit has been issued or for which an application is pending;
6. whether the proposed use will adversely affect the quantity or quality of water available for domestic, agricultural, environmental, public recreational, or municipal uses within either the basin of origin or the receiving basin;
7. whether the proposed transfer will unduly limit the future growth and development in the basin from which the water is exported;
8. the practicable availability of alternative sources of water for the proposed use that would not rely on transfer of water out of its basin of origin;
9. whether the entity in the receiving basin has prepared and implemented a drought contingency plan and an approved water conservation plan;
10. whether all funding necessary for the withdrawal and transportation of water to the receiving basin has been secured and guaranteed by the applicant; and
11. whether the source of supply can reliably sustain the diversion's anticipated firm yield considering the predicted effects of climate change on precipitation patterns and temperature in the basin of origin.

The Office of the State Engineer voiced opposition to the bill, primarily because it would add another layer of regulation to water transfer applicants at the expense of applicants. The Attorney General's Office added that requiring legislative consent for a private water permit application "is extremely rare and presents the applicant with significant obstacles to acquiring a permit involving an inter-basin transfer of more than seven thousand acre feet," especially because the Legislature is not always in session.

New Mexico courts maintain that the State Engineer may preclude impairment by denying an application all or in part, or by imposing conditions on its approval. The New Mexico Supreme Court held this discretion applies when an appropriator seeks a right to use groundwater in a manner that would impair existing surface water rights. In the 2007 case *Montgomery v. Lomos Altos, Inc.*, for example, the Court upheld the State Engineer's determination that an applicant seeking to withdraw groundwater in the Rio Grande Underground Water Basin, hydrologically connected to fully appropriated Rio Grande surface flows, would have to mitigate the surface water depletion as a condition of its permit.

Impairment is not limited to considerations of impact on water volume; water quality impacts can also be considered impairment. The Supreme Court, in the 1962 case *Heine v. Reynolds,* upheld a State Engineer's impairment determination as the facts showed granting the application would result in a small increase in salt content in an underground basin. Water quality concerns for the receiving basin in inter-basin transfers have garnered some recent attention outside of New Mexico. In 2006, the EPA issued a final rule excluding water transfers from Clean Water Act oversight. However, in an unpublished 2014 opinion in *Catskill Mountains Chapter of Trout Unlimited, Inc. v. U.S. E.P.A.*, a New York federal district court held the exclusion of inter-basin transfers from the Clean Water Act to be invalid. Although the opinion is not binding on New Mexico courts, it provides a thorough regulatory history of the issue and offers a framework for the consideration of receiving basin prerogatives.

The concept of conservation of water is closely tied to the enduring principle of beneficial use, which is the measure of and limit to a water right. New Mexico courts often describe the beneficial use limitation on water rights as, "a right to take a given quantity of water for a specified purpose."

The concept of conservation of water is closely tied to the enduring principle of beneficial use, which is the measure of and limit to a water right. New Mexico courts often describe the beneficial use limitation on water rights as, "a right to take a given quantity of water for a specified purpose." A West-wide anti-speculation doctrine dictates that beneficial use must entail actual use, and not undefined plans for future use. In *Jicarilla Apache Tribe v. United States*, the 10th Circuit invalidated a water storage agreement between the Bureau of Reclamation and the City of Albuquerque when the City based its appropriation on plans to sell its water to as-yet unidentified customers: "We do not deny that Albuquerque could take the quantity authorized in order to provide its purchasers for beneficial use regardless of the economic results to the City," the court wrote. "But it cannot take the water now with a mere hope of possible sales in the future, most of which sales are yet to materialize."

The State Engineer's third and final legal consideration, "detrimental to public welfare," leaves much to interpretation. New Mexico's Constitution, Article XVI, § 2 reads: "The unappropriated water of every natural stream, perennial or torrential, within the state of New Mexico, is hereby declared to belong to the public…." In *Young & Norton v. Hinderlider,* a 1910 case, the Supreme Court construed the statute broadly, striking down a determination by the

water commission that considerations of public interest should be limited to menaces to public health and safety: "There is no such limitation expressed in terms in the statute, and we think not by implication. The declaration in the first section of the statute that the waters therein described are 'public waters,' and the fact that the entire statute is designed to secure the greatest possible benefit from them for the public, should be borne in mind." The *Hinderlider* court held that the public should be protected from "worthless investments:"

> If there is available unappropriated water of the La Plata river for only 5,000 or 6,000 acres of land, it would be contrary to the public interest that a project for irrigating 14,000 acres with that water should receive an official approval which would, perhaps, enable the promoters of it to market their scheme, to sell stock reasonably sure to become worthless, and land which could not be irrigated, at the price of irrigated land. Such a proceeding would in the end result only in warning capital away from the territory. The failure of any irrigation project carries with it not only disastrous consequences to its owners and to the farmers who are depending on it, but besides tends to destroy faith in irrigation enterprises generally.

Proposed and Pending Transfers in New Mexico

Numerous inter-basin transfers have been proposed in New Mexico, and those proposals have incurred varying receptions.

Estancia Basin to Santa Fe

One company, Sierra Waterworks, LLC, proposed a groundwater transfer of 7,200 acre-feet a year from the Estancia Basin to Santa Fe. A citizens group, the Estancia Bay Resource Association, quickly formed to oppose the plan, based on its potential to turn a thriving agricultural community into a dust bowl. That plan is now inactive. However, locals support a more modest transfer proposal that would keep water within the basin. Under the new plan, the EMW Gas Association may build a $19 million regional water pipeline from Willard to Moriarty along New Mexico State Highway 41, to supplement individually owned wells.

Numerous inter-basin transfers have been proposed in New Mexico, and those proposals have incurred varying receptions.

Pecos River to Santa Fe

Berrendo, LLC, proposed a surface water transfer of 6,600 acre-feet per year from the Pecos River near Fort Sumner to Santa Fe, but the State Engineer denied the application. According to an Office of the State Engineer press release, Berrendo President Ron Green proposed the transfer to provide drinking water for growing parts of the state. Opponents of the transfer included "Chaves County, Eddy County, the cities of Artesia and Roswell, the towns of Hagerman and Dexter, the New Mexico Interstate Stream Commission, the State Land Commissioner, the Bureau of Reclamation, and the Pecos Valley Artesian Conservancy District, among others," according to the release. Concerns included well drawdown at individual wells, negative impacts on agriculture and the federally protected bluntnose shiner. The State Engineer's denial was based on a lack of specificity that made it "difficult to evaluate impairment or whether granting it would

The Arizona Water Settlements Act of 2004 authorized a diversion of up to 14,000 acre-feet per year from the Gila River system as part of an exchange with the Central Arizona Project. If New Mexico takes advantage of the diversion, the federal government will fund infrastructure up to $66 million, which could move water out of the Gila Basin into the Mimbres or perhaps even the Rio Grande Basin.

be contrary to conservation or detrimental to the public welfare," said then State Engineer John D'Antonio.

Plains of San Augustin to the Rio Grande

Augustin Plains Ranch, LLC, has proposed a groundwater transfer of 54,000 acre-feet per year from Plains of San Augustin to the Rio Grande. The State Engineer originally denied the application in 2008, following protests by more than 900 opponents, according to an April 2012 State Engineer press release. Opponents included the New Mexico Interstate Stream Commission, the Middle Rio Grande Conservancy District, the Bureau of Reclamation, New Mexico Department of Game and Fish, Gila and Cibola National Forests, Catron County, Socorro County, Luna Irrigation Ditch, Monticello Irrigation District, several adjoining ranches, over 100 individuals, the Pueblos of Santa Ana, Zuni, San Felipe, Isleta, Sandia, Acoma, Kewa (Santo Domingo), and the Navajo Nation. They worried that the drawdown of water could impact their wells and would have an adverse impact on their rural, agricultural lifestyle. The State Engineer Hearing Officer held the application was "vague, overbroad, lacked specificity, and the effects of granting it cannot reasonably be evaluated, problems which are contrary to public policy." In addition, no end user had been identified. The Ranch appealed the denial in the 7th Judicial District Court and lost in early 2013, then appealed to the Court of Appeals. That case was dismissed as moot in mid-July, because the Ranch had submitted a new application to the State Engineer. Local residents, banded together in a group called the San Agustin Water Coalition, continue to voice opposition to the proposal based on their own concerns about future recharge and depletion of groundwater supplies.

The Gila River to the Mimbres River

The Arizona Water Settlements Act of 2004 authorized a diversion of up to 14,000 acre-feet per year from the Gila River system as part of an exchange with the Central Arizona Project. If New Mexico takes advantage of the diversion, the federal government will fund infrastructure up to $66 million, which could move water out of the Gila Basin into the Mimbres or perhaps even the Rio Grande Basin. Many have argued that it makes better economic sense to forego the diversion to develop alternative water sources. Biological diversity in the Gila could be threatened by the withdrawal of water, including many state and federally protected birds and other animals. Additionally, water must be delivered from the Central Arizona Project to offset the impacts to downstream communities is proposed to come, although shortages are projected for the Central Arizona Project supply in the near future.

Red River to Arroyo Seco

The Claims Resolution Act of 2010 includes settlements for the White Mountain Apache Tribe, the Crow Tribe, the Taos Pueblo, and four additional pueblos. The Act establishes a fund of $36 million for the Taos Pueblo water rights

settlement, subject to Congressional appropriation, from which the Secretary of the Interior may make grants between 2011 and 2016, to pay for such projects. As of 2013, two transfers had been proposed under the settlement. The first of these is actually a set of several transfers to move a total of 284 acre-feet of water from northern Taos County. That water is owned or leased by El Prado Water and Sanitation District, which aims to move the water rights to offset groundwater pumping. The second involves a water transfer application to move 183 acre-feet per year from a Questa acequia to acequias in Arroyo Seco. Both are the subject of protests by Taos and neighboring citizens.

Rio Grande Basin to Pojoaque Basin

The Aamodt adjudication, quantifying rights for the Nambe, Pojoaque, San Ildefonso, and Tesuque pueblos, authorizes a transfer of 1,141 acre-feet from Santa Fe County's "Top of the World" farm in the Taos Basin to the Pojoaque Basin. The water will be combined with 302 acre-feet of Nambe Pueblo water and 1,079 feet of San Juan-Chama water for a regional water system. Plans include Rio Grande surface diversion facilities at San Ildefonso and "any treatment, transmission, storage and distribution facilities and wellfields…necessary to supply 4,000 acre-feet of water within the Pojoaque Basin," up to a cost of $106.4 million (indexed for inflation). Although potential opponents are braced to protest transfers stemming from the Aamodt adjudication, no applications have been filed as of the end of 2014.

Canadian River to the Southern High Plains

The Eastern New Mexico Rural Water System (also known as the Ute Pipeline Project) has plans under way to divert 16,450 acre-feet per year from Ute Reservoir for communities on New Mexico's eastern plains. Construction began on the project in 2011, and the state and its federal delegation are actively supporting its progress; the state Water Trust Board announced $4 million in funds earlier this year that will fund engineering designs for connections at the Clovis/Cannon Air Force Base and Clovis/Portales. There are concerns about whether the reservoir actually has the capacity to deliver the promised water, and the potential for effects is unclear on tourism, recreation, and home ownership near Ute Reservoir.

Upper Colorado to Lower Colorado

The Navajo-Gallup Water Supply Project aims to pump 37,764 acre-feet per year through 260 miles of pipeline from the San Juan River to Gallup, Window Rock and other Native American communities. Touted as the cornerstone of the Navajo water settlement on the San Juan, the project is one of fourteen high-priority infrastructure projects identified in October of 2011 by the Obama Administration to be expedited through the permitting and environmental review process, according to a Department of Interior press release issued in 2014. Also in 2014, according to the release, the Bureau of Reclamation awarded a $19.6 million contract to start construction on the first pumping plant in the system.

The Navajo-Gallup Water Supply Project aims to pump 37,764 acre-feet per year through 260 miles of pipeline from the San Juan River to Gallup, Window Rock and other Native American communities.

Other Western State Approaches to Inter-Basin Transfer Regulation

Western states have adopted differing approaches for the regulation of inter-basin water transfers. Some states have an outright prohibition on transfers that exceed a significant amount. Others require a heightened scrutiny to ensure that environmental and economic impacts are reasonable. Some require consent from the existing users, the local government, or the state legislature. Finally, some require offsets in the form of payments to the area of origin.

California's water code, for example, allows for transfers only if they do not unreasonably affect fish, wildlife, or other in-stream beneficial uses, and do not unreasonably affect the overall economy of the area from which the water is being transferred. The same code prohibits the transfer of groundwater unless the transfer is in compliance with a county-adopted groundwater management plan.

Colorado law provides that transfers from agricultural areas "shall include reasonable provisions designed to accomplish the re-vegetation and noxious weed management of lands from which irrigation water is removed." Colorado law also requires compensation to local governments in the source areas when applicants seek to transfer more than 1,000 acre-feet per year more than twenty miles away, and allow for offsets if pollution excesses occur as a result of the lost water volume.

Western states have adopted differing approaches for the regulation of inter-basin water transfers. Some states have an outright prohibition on transfers that exceed a significant amount. Others require a heightened scrutiny to ensure that environmental and economic impacts are reasonable.

The Idaho Department of Water Resources oversees transfer applications, the approval of which must be "consistent with the conservation of water resources within the state of Idaho and is in the local public interest…[and] will not adversely affect the local economy of the watershed or local area within which the source of water for the proposed use originates." The statute also proscribes transfers that would significantly impact the agricultural base of a local area.

Montana seeks to safeguard both the area of origin and the source area; that state's code says that a determination of reasonable use for transfers greater than 4,000 acre-feet per year, and 5.5 cubic feet for second, must consider both "the effects on the quantity and quality of water for existing uses in the source of supply," and "the probable significant adverse environmental impacts of the proposed use of water."

In Nevada, transfers out of irrigation districts "must not adversely affect the cost of water for other water rights holders in the district or lessen the efficiency of the district in its delivery or use of water." Additionally, counties of origin can impose an annual fee of $10 per acre-foot on certain groundwater transfers or draft a binding plan, including requirements for the applicant and successors to offset economic losses. For inter-basin groundwater transfers, the state engineer must consider whether the transfer will "unduly limit the future growth and development in the basin from which the water is exported." Finally, the state engineer must evaluate "whether the proposed action is environmentally sound as it relates to the basin from which the water is exported."

Applicants for water transfers in Oregon must quantify the return flow benefits that

will be eliminated and impacts on both surface water and groundwater, along with six other factors, and the state must "reserve an amount of water adequate for future needs in the basin of origin, including an amount sufficient to protect public uses, and subordinate the out-of-basin use to that reservation." Oregon's legislature must approve transfers of fifty cubic feet per second or more, and applications impacting streams subject to in-stream water rights must secure a "consent to injury" from any resource management agency that holds the in-stream flow rights.

In Texas, inter-basin transfers of more than 3,000 acre-feet per year of surface water are subject to an analysis of water quality impacts and economic considerations for the source area, among other factors. Surface-water inter-basin transfers in Texas carry a junior priority date. The Texas water code proscribes transfers that "cause adverse impact on other water right holders or the environment on the stream of greater magnitude than under circumstances in which the permit, certified filing, or certificate of adjudication that is sought to be amended was fully exercised."

Utah's water code directs the state engineer to reject a transfer application if it "...will unreasonably affect public recreation or the natural stream environment, or will prove detrimental to the public welfare."

Wyoming statutes provide that "[t]he change in use, or change in place of use, may be allowed, provided that the quantity of water transferred by the granting of the petition shall not exceed the amount of water historically diverted under the existing use, nor exceed the historic rate of diversion under the existing use, nor increase the historic amount consumptively used under the existing use, nor decrease the historic amount of return flow, nor in any manner injure other existing lawful appropriators."

First and foremost, where the State Engineer has denied transfer proposals, lack of specificity has been a key reason. Similarly, New Mexico courts have overturned transfer approvals where end uses were insufficiently defined.

Conclusion

New Mexico's case law, along with State Engineer commentary accompanying proposed inter-basin transfers, reveals several trends. First and foremost, where the State Engineer has denied transfer proposals, lack of specificity has been a key reason. Similarly, New Mexico courts have overturned transfer approvals where end uses were insufficiently defined. Therefore, arguments based on the anti-speculation doctrine may prevail at both levels. Secondarily, coordinated local opposition appears to hold some sway. This may or may not be based on the fundamental principle, which the State Engineer must consider, of public detriment. New Mexico case law also suggests that impairment to water quality, even salt content, at the source basin precludes State Engineer approvals and is grounds for reversal when an application is wrongly approved. The same is true for the principle of waste. High evaporative loss, for example, has been held to be contrary to conservation in violation of statutory limits to transfer application approvals.

The future of inter-basin transfers in New Mexico will depend on the decisions of the State Engineer, the water marketplace, and any controls the Legislature may implement to regulate them.

By Anne Minard, UNM School of Law, Class of 2015

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New Mexico's Major Reservoirs— An Overview

> "Suffice it to say that there is no western water issue that so strikes fear into the heart of western water managers as the issue of the federal operation of dams and reservoirs on western rivers. There is also no issue that is so shrouded in the mystery of arcane operating agreements as are the operations of these facilities."
>
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Rivers are the lifeblood of New Mexico. Most of the water in New Mexico's rivers is managed through a highly engineered and regulated system of dams and reservoirs. The impact of such water storage facilities on rivers and their importance in extending and managing scarce water supplies for human use and irrigation cannot be overstated. The objective is, of course, to capture surface-water—snow melt and runoff from rainfall—and release it for later use when needed downstream.

The state's reservoirs store water for a number of different purposes: flood control (generally water is released as soon as downstream conditions allow), conservation storage (storing the natural flow of the river for later use, usually municipal or agricultural), power production, sediment control, fish and wildlife benefits, and recreation. Each storage dam and reservoir may have several of these purposes, and federal reservoirs' purposes are strictly defined by congressional authorizations. In recent years, the operations of some dams have been altered to reduce the impacts they may have on bird and fish species and their habitat.

This paper describes the salient facts about the major water storage reservoirs in New Mexico. For each reservoir, we address the purposes of water storage allowed by law, storage capacity, the responsible operating agency, and some key operational issues. This is by necessity a vast simplification of the topic. Books, articles, research reports, operation manuals, and other materials on these topics run into the hundreds. Millions of dollars have been spent on technical studies and computer models to understand, and sometimes alter, the operations of various dams and reservoirs.

Each storage dam and reservoir may have several of these purposes; and for federal reservoirs, their purposes are strictly defined by congressional authorizations.

The goal here, however, is to provide legislators and others a short, handy reference guide, to some of the more important dams and reservoirs.

Small Reservoirs and Dams

The discussion in this paper is mostly limited to reservoirs that have storage capacities of at least 20,000 acre-feet. Numerous small reservoirs, some of which play critical roles in water management are not detailed here. Such reservoirs may hold irrigation water or be used for municipal purposes. They have been built with a variety of funding sources, usually local landowners and irrigators. Most have interesting operational features. (See box for several examples).

Examples of Small Reservoirs in New Mexico

McClure and *Nichols* reservoirs, in the canyon of the Santa Fe River, just above the City of Santa Fe, are used for the Santa Fe municipal supply, holding 3,255 and 684 acre-feet respectively. The growing city also uses well water and is beginning to use San Juan-Chama water diverted from the Rio Grande. They were both constructed after 1929 and all but 1,061 acre-feet of their combined storage is subject to Article VII of the Rio Grande Compact (see below).

Bluewater Lake, on the western side of the state, is partially owned by the New Mexico Department of Game and Fish and partially by the Bluewater-Toltec Irrigation Company. Storage levels vary widely depending upon snowmelt runoff, monsoonal rainfall, and irrigation drawdowns, but the average storage is about 16,000 acre-feet. The concrete arch dam was built in 1927 and was rehabilitated in the 1980s.

Bonito Lake, located in the Sierra Blanca range northwest of Ruidoso, was created by the Southern Pacific Railroad in 1931. It is owned and operated by the city of Alamogordo. The dam and lake are in the Lower Pecos basin, while Alamogordo is in the Tularosa Basin. A 90-mile pipeline carries water to Alamogordo and Holloman Air Force Base. The lake holds about 3,000 acre-feet and annual quantities are split between Alamogordo and Holloman Air Force Base, with small amounts going to Carrizozo, Nogal, and Ft. Stanton. In 2012 flooding after the Little Bear fire filled Bonito with forty feet of sediment. Clean-up is expected to take up to five years and cost $24 million.

There are also hundreds of small flood control dams that do not store water for beneficial use, but instead are required to release floodwater within a certain amount of time (typically ninety-six hours), or as soon as downstream conditions safely allow. Such dams are usually owned and managed by soil and water conservation districts and are currently the subject of much discussion. Many were built long ago to protect farms and agricultural areas and were built using relatively low standards for the design of their emergency spillways. Now, instead of fields, developed subdivisions lie below many of them, necessitating upgraded spillways to meet current dam safety standards. These upgrades are expensive and there is a considerable debate about how to pay for them. The owners of the dams, who had no control over allowing the downstream developments to occur, cannot bear full responsibility. The Office of the State Engineer estimates that there are 162 deficient dams statewide and that $5 million per year is needed for ten years to address the upgrades. It is clear that a statewide assessment of dams is needed, as well as a reasonable process in order to fund and prioritize upgrades to problem dams.

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Interstate Compacts

A few of New Mexico's rivers begin within the state and then flow into adjacent state—the Canadian, Pecos, Gila, and several smaller streams. Other rivers like the Rio Grande and the San Juan River, flow into New Mexico from Colorado and then continue into other states. In both cases, agreements or "compacts" have been found necessary for the equitable sharing of water.

New Mexico is party to eight interstate stream compacts:

- Animas-La Plata Project Compact..(1968)
- Canadian River Compact.....(1950)
- Colorado River Compact .....(1922)
- Costilla Creek Compact.....(1946)
- La Plata River Compact .....(1925)
- Pecos River Compact .....(1948)
- Rio Grande Compact.....(1939)
- Upper Colorado River Basin Compact .....(1949)

Overview of Major Reservoirs

This overview begins upstream in the Rio Grande Basin, since most of New Mexico's reservoirs are located on the Rio Grande and its tributaries. Then it addresses the Canadian and Pecos River basins. The overview ends with Navajo Reservoir on the San Juan and part of the Colorado River Basin. The Colorado River and Rio Grande basins are separated by the Continental Divide.

We begin upstream in the Rio Grande Basin, since most of New Mexico's reservoirs are located on the Rio Grande and its tributaries.

Rio Grande Basin

Heron Reservoir

Capacity: 401,320 acre-feet

Storage as of September 1, 2014: 70,800 acre-feet

Responsible agency: U.S. Bureau of Reclamation

Authorization: PL 87-483 (1962)

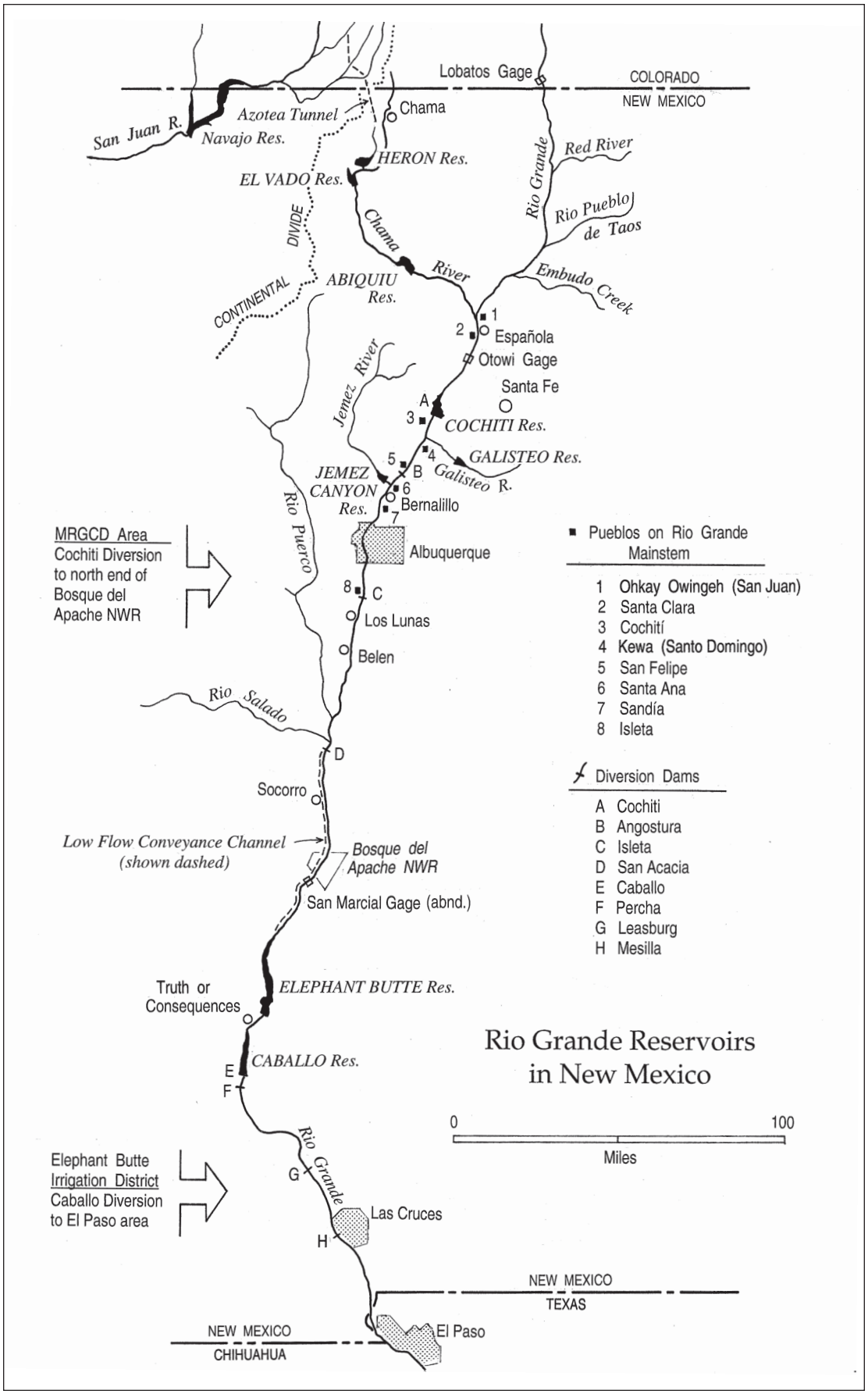
Heron Dam was constructed by the U.S. Bureau of Reclamation (Reclamation) and completed in 1971 as part of the San Juan-Chama (SJC) Diversion Project. The dam and reservoir are located on Willow Creek, a tributary of the Rio Chama. Water is withdrawn in Colorado from three tributaries of San Juan River and is delivered to Heron via the Azotea Tunnel under the Continental Divide. Eventually the water is released to the Rio Chama and ultimately flows into the Rio Grande. Thus Heron stores *imported* Colorado River basin water, not water that is native to the Rio Grande basin. "Native" Rio Grande water originates in the Rio Grande watershed. Any native Rio Chama basin water that enters the reservoir is bypassed monthly, meaning that it is not held in the reservoir but is allowed to pass through the dam and flow downstream. Native inflows, however, are minor in relation to Heron's overall capacity—they total about 15,000 acre-feet per year. Also, at the Otowi gage where the Rio Grande flow is measured, the SJC water is not counted as native water and therefore is not subject to the Rio Grande Compact.

Municipal Domestic and Industrial Supplies	**Acre-feet Provided**
City of Albuquerque (ABCWUA)	48,200
Jicarilla Apache	6,500
City and County of Santa Fe	5,605
County of Los Alamos	1,200
City of Española	1,000
Town of Belen	500
Village of Los Lunas	400
Village of Taos	400
Town of Bernalillo	400
Town of Red River	60
Twining Water & Sanitation District	15
Irrigation Supplies	
Middle Rio Grande Conservancy District	20,900
Pojoaque Valley Irrigation District	1,030

The water stored at Heron is for use by the entities that have contracted to receive it, most notably Albuquerque, Santa Fe, and the Middle Rio Grande Conservancy District (MRGCD).

The SJC water is to be used primarily for municipal/industrial and agricultural purposes. Carry-over storage of SJC water in Heron from year to year is not allowed. Contractors are obliged to take delivery of the water by December 31 of each year and either use it or store it elsewhere. If a waiver of the deadline is granted, water may remain in Heron until the following September 30. Waivers are issued fairly often. Diversions from the San Juan River basin to fill Heron were initiated in 1970. Since then an average of 94,200 acre-feet has been imported into the Rio Grande basin each year.

Operation of Heron was a major issue in the Rio Grande silvery minnow litigation, where several environmental groups sued



Rio Grande Basin

by Jerold Widdison for the Utton Transboundary Resources Center. Originally published in the Natural Resources Journal (2007).

the federal government under the Endangered Species Act. In the course of the extensive litigation from 1999 to 2010, federal district court Judge James Parker ruled that Reclamation has discretion to use agricultural and municipal contracted water from Heron to maintain minimum stream flows for the minnow, and therefore should consider this water when developing measures to meet the biologic needs of endangered species. The entities for which the water was intended—Albuquerque and the MRGCD—argued that it was unfair and contrary to law for their contracted water to be taken for the minnow. In April of 2010, the 10th Circuit Court of Appeals vacated the district court ruling as moot, because a new Biological Opinion had since been issued in 2003, setting out new flow requirements. [However, silvery minnow litigation was re-initiated in 2014.] The litigation has ended for now, but the issue is not resolved. The Middle Rio Grande Endangered Species Act Collaborative Program is working hard to develop a recovery program.

El Vado reservoir is where the Bureau of Reclamation stores "prior and paramount" water for the six Middle Rio Grande Pueblos: Kewa (Santo Domingo), Cochiti, San Felipe, Santa Ana, Sandia, and Isleta.

El Vado Reservoir

Capacity: Reduced by sedimentation to a current capacity of less than 190,000 acre-feet)

Storage as of September 1, 2014: 51,600 acre-feet

Responsible agency: U.S. Bureau of Reclamation

Authorization: 1927 Conservancy Act, NMSA § 73-14-1 through 73-14-88; Act of 1928, 45 Stat. 312 (appropriating federal funds to pay for Pueblos' share of Conservancy works)

El Vado Dam and reservoir were built as part of the Middle Rio Grande Conservancy District works in 1935. Reclamation rehabilitated the dam in the 1950s and storage rights were assigned to it in 1963. El Vado is primarily used to store native Rio Chama flows for use by the MRGCD for irrigation. It is the reservoir where Reclamation stores "prior and paramount" water for the six Middle Rio Grande Pueblos: Kewa (Santo Domingo), Cochiti, San Felipe, Santa Ana, Sandia, and Isleta. It also played prominently in the minnow litigation. An unresolved issue is that both the MRGCD and Reclamation claim title to the works of the Middle Rio Grande Project, including El Vado.

El Vado operations involve the storage of natural inflow that exceeds current MRGCD irrigation demand. As one of the few reservoirs constructed after 1929 that stores native Rio Grande water, El Vado is subject to Article VII of the Rio Grande Compact. Typical operations include filling the reservoir as much as possible during spring runoff and drawing it down during the irrigation season. El Vado is operated during the irrigation season to pass all the natural flow of the Rio Chama up to 100 cubic feet per second (cfs), in order to provide water for the Rio Chama acequias. After the end of the year, and when it is determined how

much water New Mexico owes Texas under the Compact, water may be released from El Vado to meet New Mexico's delivery obligation at Elephant Butte.

El Vado also provides power generation during its operations for Los Alamos County, whenever flows and water elevations fit the criteria necessary for power production. The dam is operated to regulate flows in the Rio Chama, a national Wild and Scenic River, by the release of water for irrigation and also by the pass-through of San Juan-Chama water to Abiquiu Dam. Weekend releases for river rafting are also accommodated as conditions permit.

Abiquiu Reservoir

Capacity: 183,099 acre-feet of SJC storage

- Primarily for ABCWUA, but small amounts are leased to other SJC contractors

Storage as of September 2014:
129,014 acre-feet

Responsible agency:
U.S. Army Corps of Engineers

Authorization: Flood Control Act of 1948, PL 81-858; Flood Control Act of 1960, PL 86-645; PL 97-140 (1981) SJC storage; PL 100–522 (1988) native storage

Below El Vado, on the Rio Chama, is Abiquiu Reservoir, about thirty miles upstream from the Chama's confluence with the Rio Grande. This reservoir was built in 1962 for flood and sediment control purposes by the U.S. Army Corps of Engineers. In 1981, the authorizing legislation was amended to allow limited storage of Albuquerque's SJC water. For this purpose, the city of Albuquerque—predecessor-in-interest to the Albuquerque Bernalillo County Water Utility Authority—acquired storage easements, to an elevation of 6,220 feet, from landowners. The storage capacity is annually reduced by accumulation of sediment. The channel capacity of the Rio Chama downstream of Abiquiu is limited to 1,800 cubic feet per second, so when flood operations are in effect—because of spring runoff or summer storms in northern New Mexico—flood waters are released at 1,800 cubic feet per second or less, in order to maintain safe channel conditions downstream.

Because Abiquiu primarily stores Albuquerque's San Juan-Chama water and that water is now being used for a portion of the urban area's drinking water supply, it is anticipated that Abiquiu may have space available for storage of native Rio Grande water. Storage of native water

Article VII of the Rio Grande Compact

Article VII of the Rio Grande Compact comes up frequently because of its broad implications. It applies to storage of native water in reservoirs on the Rio Grande or its tributaries and does not include water imported from another basin; specifically, San Juan-Chama water, which is imported from the Colorado River Basin and stored in Rio Grande reservoirs. Under Article VII, no storage is allowed in any reservoir upstream of Elephant Butte built after 1929 when the usable project water in Elephant Butte and Caballo Reservoirs falls below 400,000 acre-feet, unless the relinquishment of credit waters in Elephant Butte occurs.

Article VII affected operations in thirteen years from 1956 to 2008, or about 25 percent of the time. The provision primarily affects El Vado Reservoir, because the other Rio Grande reservoirs store San Juan-Chama water and/or flood flows, the latter of which are released as soon as downstream conditions safely allow. At a smaller scale, it affects McClure and Nichols reservoirs. The purpose, of course, is to help ensure an adequate flow into Elephant Butte. An exception to Article VII is applied in the case of El Vado for the storage of "Prior and Paramount" water rights for the several Rio Grande Pueblos, because the Compact by its own terms does not affect the water rights of Native American Pueblos and Tribes.

Water-resource experts concerns have been to optimize water management and not to over-deliver to Texas, and to reduce evaporative losses from the high rates of loss that Elephant Butte experiences.

within the available space approved for SJC water is authorized by law, but major hurdles must be overcome for native storage on a permanent basis to occur, such as environmental clearances and agreements with underlying real property owners.

Flexibility was in play with Abiquiu operations when the reservoir was used for storage under the Conservation Water Agreement in 2001–2003 and the Emergency Drought Water Agreement of 2003, both of which were entered into between the State of New Mexico and the United States, and approved by the Rio Grande Compact Commission. Such flexibilities in storage at Abiquiu have attracted interest and attention among water-resource experts when they have considered alternative storage scenarios for Rio Grande water. Their concerns have been to optimize water management, not over-deliver to Texas, and reduce the high evaporative losses from the Elephant Butte reservoir. To settle part of the litigation over the silvery minnow, the ABCWUA agreed to work with environmental groups to develop a 30,000 acre-foot environmental storage pool at Abiquiu to be used for ecosystem purposes during times of low flow on the Rio Grande.

Cochiti Reservoir

Capacity: 50,000 acre-feet recreation pool; 590,000 acre-feet flood control pool

Storage as of September 2014: 47,065 acre-feet

Responsible agency: U.S. Army Corps of Engineers

Authorization: Flood Control Act of 1960, PL 86-645; PL 88-293 (50,000 acre-feet of SJC water for recreation, fish, and wildlife)

Cochiti Reservoir is the only impoundment in the Rio Grande's Middle Valley that exists on the mainstream of the river. The dam and most of the reservoir are on Pueblo de Cochiti land. The Reservoir was built for flood and sediment control purposes and primarily to protect Albuquerque from extreme flooding events. A permanent recreational pool was authorized in 1964 and 5,000 acre-feet of SJC water was allocated annually; first to create a 50,000 acre-foot pool, and thereafter, to replace the annual evaporative losses. Cochiti Dam's construction was completed in August of 1975. During high water, the reservoir intrudes into Bandelier National Monument. Between this impact and its effects on the natural hydrograph of the river, environmentalists have called Cochiti "the dam that got away."

Cochiti Dam passes all inflow except when restraining flood inflows or when the permanent pool is being refilled. The dam directly regulates Rio Grande flows into the river's Middle Valley. The channel capacity below Cochiti is limited to 7,000 cubic feet per second to pass safely flood flows. The cubic feet per second measurements are taken at the Central Avenue Bridge in Albuquerque. The San Marcial railroad bridge some 200 miles downstream creates another choke point for safely passing flood flows.

Cochiti Pueblo has a strong voice in the management of the reservoir and in

working with the Corps of Engineers they have allowed minor deviations in operations at Cochiti. This has provided extra storage of water that is released to create pulse flows to promote spawning of the silvery minnow. Due to the history of issues that arose during the planning and construction of the reservoir, and damage that has in fact resulted to agricultural lands and sacred sites, the Pueblo is cautious about any potential changes to the dam's authorized operations.

Jemez Canyon Dam and Reservoir and Galisteo Dam and Reservoir are also Corps of Engineers facilities. Their primary purpose is flood control and trapping sediment.

Due to the history of issues that arose during the planning and construction of the reservoir, and damage that has in fact resulted to agricultural lands and sacred sites, the Pueblo is cautious about any potential changes to the dam's authorized operations.

Elephant Butte Reservoir

Capacity: Two million acre-feet

Storage as of September 2014: 164,829 acre-feet

Responsible agency: U.S. Bureau of Reclamation

Authorization: Rio Grande Reclamation Project, enacted in 1905, PL No. 58-108.

At the downstream end of the Rio Grande's Middle Valley is Elephant Butte Dam, built in 1912–1916 by the fledgling Reclamation Service, now the United States Bureau of Reclamation. At the time, the dam was the largest in the world. Controversy abounded between the federal government and private interests over the right to impound waters of the Rio Grande in this approximate location, and threads of that controversy continue to the present day.

Elephant Butte Reservoir is the principal storage facility for the federal Rio Grande Project. Reclamation delivers irrigation water under contracts between Reclamation and the Elephant Butte Irrigation District for 90,000 water-righted acres in New Mexico and El Paso County Water Improvement District No. 1 for 69,000 water-righted acres in Texas. New Mexico's Rio Grande Compact delivery obligation takes place at the spillway of Elephant Butte Dam: thus about 57 percent of the water delivered under the Compact, is actually delivered to southern New Mexico farmers. Elephant Butte is also operated to ensure that the obligation of the United States under the 1906 Treaty with Mexico to deliver 60,000 acre-feet per year is met. That delivery is managed by the International Boundary and Water Commission (IBWC), by means of a diversion facility near Ciudad Juárez. The full Rio Grande Project delivery is 790,000 acre-feet. When a full amount is not available, water to the irrigation districts and Mexico are reduced on a pro rata basis. In 2008, a new operating agreement was negotiated which specifies procedures for allocation and releases. The State of New Mexico filed a challenge to the agreement in federal district court in *New Mexico v. United States* in 2011. Texas filed suit in the United States Supreme Court over compact deliveries in 2013. For more information, please see the chapter "Water

Elephant Butte Reservoir is the principal storage facility for the Bureau's Rio Grande Project.

Water-resource experts' concerns have been to optimize water management and not over-deliver to Texas, and to reduce evaporative losses from the high rates of loss that Elephant Butte experiences.

Litigation in the Lower Rio Grande" in this edition of *Water Matters!* and "*Texas v. New Mexico and Colorado*" on the Utton Center web page.

Recreation is also an important function at Elephant Butte. More than one million people annually visit the Elephant Butte Lake State Park. As with most of the reservoirs, there is both compatibility, and at times tension, between recreational uses and Elephant Butte's primary purpose of water storage. The size of the reservoir varies greatly, depending upon storage levels. Evaporative losses on the lake are estimated at about ten feet annually. When the lake is full, at 2 million acre-feet, evaporative losses are estimated at 140,000 acre-feet per year or roughly two times the annual use of Albuquerque. This evaporation lead many to think about how to reduce such losses or how to store water at higher elevations where the evaporative losses are not so great. Water has seldom gone over the dam's spillway, although this occurred in the high flood year of 1941. Now the dam is operated in ways that avoid actual spills, although this has not been a concern in recent low-water years. When Elephant Butte spills, it erases all accrued debits and credits under the Rio Grande Compact. The last spills under the Compact occurred in the wet years of the late 1980s. Operation of Article VII of the Compact is based on water levels at Elephant Butte. (See box above.)

Caballo Reservoir

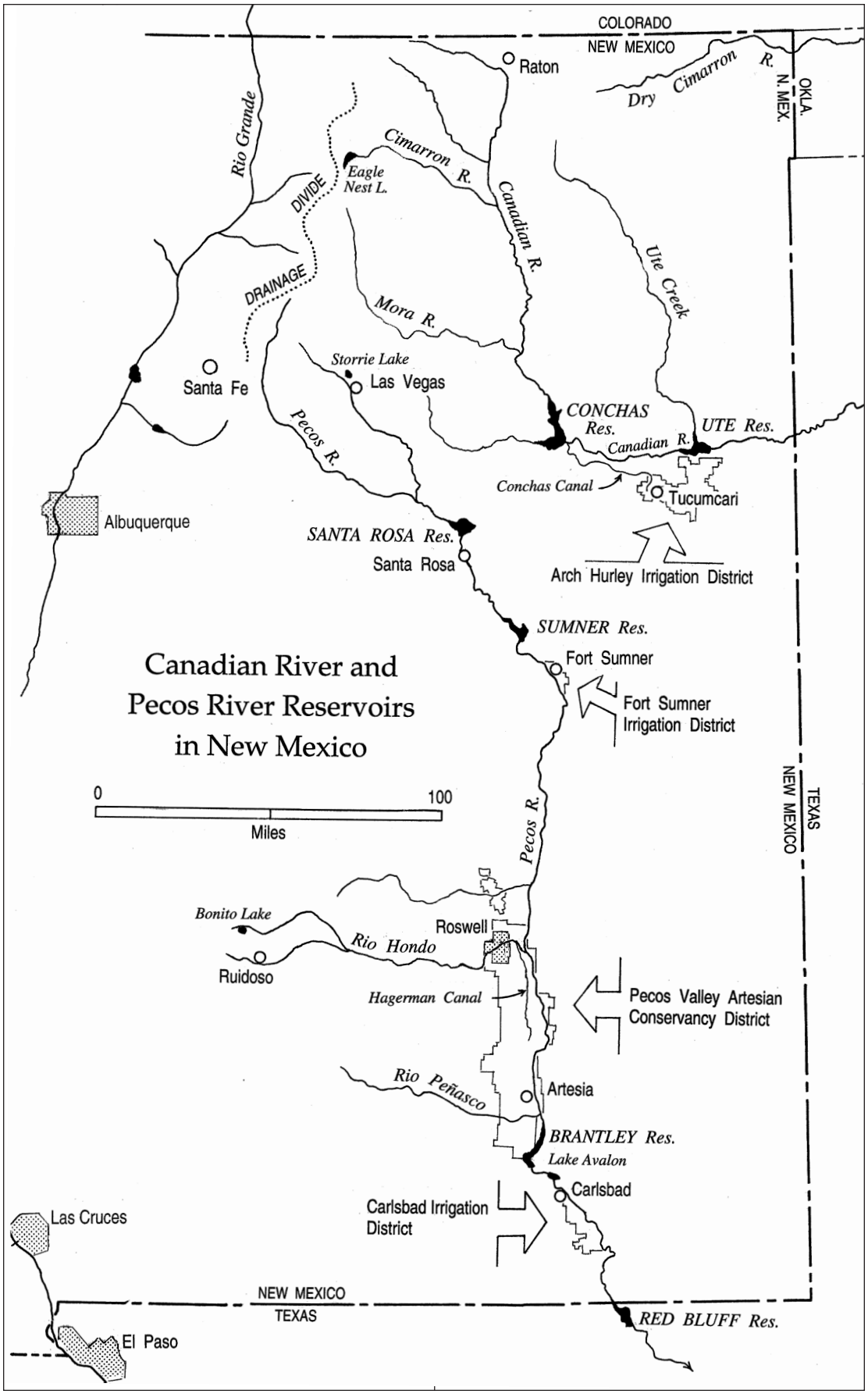
Capacity: 350,000 acre-feet flood storage; 50,000 acre-feet target

Storage as of September 2014: 27,816 acre-feet

Responsible agency:
U.S. Bureau of Reclamation

Authorization: Rio Grande Reclamation Project, enacted in 1905, PL No. 58-108

Caballo is a reservoir that works in conjunction with Elephant Butte, providing storage for irrigation, power, and flood control. Since its construction in 1938, Caballo Dam has provided supplemental storage for Rio Grande Project storage. Water released from Elephant Butte for power production is re-impounded in Caballo for use in irrigation the following season. Further, Caballo is operated for flood control in cooperation with the International Boundary and Water Commission (IBWC) to limit flow in the Rio Grande below the dam and to meet the 1906 Treaty deliveries to Mexico's Acequia Madre irrigation canal. Per a 1996 Court Order, which resulted from a negotiated settlement with EBID and El Paso #1 irrigation districts, Caballo's storage is targeted not to exceed 50,000 acre-feet from October 1 to January 31 each year. A variety of exceptions are specified, but any significant variation from the target requires that Reclamation consult and collaborate with the districts.



Canadian River Basin

By Jerold Widdison for the Utton Transboundary Resources Center

Canadian River Basin

Eagle Nest Reservoir

Capacity: Approximately 78,000 acre-feet (maximum); 52,800 acre-feet (average)

Storage as of November 2014: About 19,000 acre-feet

Responsible agency: Interstate Stream Commission

Eagle Nest was built at the upstream end of the Canadian River Basin in 1918 in Cimarron Canyon by the Springer ranching family in order to capture the runoff from the Moreno Valley watershed for irrigation use. Over the years, Eagle Nest has become a popular lake for fishing, and in 2002 the reservoir was conveyed to the New Mexico Game and Fish Department. The dam is now operated and managed by the New Mexico Interstate Stream Commission, while recreational use of the lake is managed by New Mexico State Parks.

Water in the lake is owned by eighteen entities; it is primarily used for irrigation, but domestic water is also provided to the towns of Raton and Springer. After two years of litigation, a negotiated agreement was reached in 2006 on water deliveries to fulfill about 16,000 acre-feet of water rights demand per year. The capacity of the lake is limited to about elevation 8,140 feet, the crest of the dam being at 8,146 feet. The lake's level is closely tied to precipitation patterns in the immediate area: if there is good rainfall in the summer, not much water needs to be taken out for irrigation; with a poor snowpack, followed by a dry summer, the lake can be significantly drawn down.

Water in Eagle Nest is owned by 18 entities.

Ute Reservoir

Capacity: 200,000 acre-feet conservation storage; 24,000 per year under contract for municipal purposes

Storage as of November 2014: 150,000 acre-feet

Responsible agency: Interstate Stream Commission

Authorization: New Mexico Legislature (1957, 1959, 1975, 1978, 1982)

The Interstate Stream Commission built Ute Reservoir in 1962 by constructing a dam on the Canadian River near Logan, New Mexico. The ISC has operated it since that time. In the 1970s the dam's height was increased, so as to impound additional water. Its storage capacity is limited by the Canadian River Compact to 200,000 acre-feet. Storage of 24,000 acre-feet annually is subject to a purchase contract with the Ute Reservoir Water Commission. The Commission is an organization of entities including cities from Tucumcari south to the Portales area, and they have an option to purchase the water in the reservoir for consumptive use. Currently, the water in the reservoir is not being used for purposes other than recreation—boating and fishing. Ute Reservoir provides a potential renewable source of water to the communities in Eastern New Mexico that are dependent on the dwindling groundwater of the Ogallala Aquifer. The pending arrangements for proposed delivery of water from Ute Reservoir to the Eastern New Mexico Rural Water System are covered under a separate article in this edition of *Water Matters!*

Conchas Reservoir

Capacity: 198,000 acre-feet flood control purposes; 70,500 acre-feet sediment control; 252,000 acre-feet conservation storage (irrigation)

Storage as of September 2014: 157,017 acre-feet

Responsible agency: U.S. Army Corps of Engineers

Authorization: Emergency Relief Appropriation Act of 1935 (July 29, 1935); Flood Control Act of 1936

Conchas Dam was constructed by the Corps of Engineers in 1939. It was approved by President Roosevelt as a work relief project during the Great Depression. The dam is located just downstream from the confluence of the Canadian and Conchas rivers, about thirty-five miles northwest of Tucumcari. The lake provides conservation storage for the Arch Hurley Conservancy District in the vicinity of Tucumcari, and the Bell Ranch, located northeast of the lake. Recreation areas are leased to the State of New Mexico Parks and Recreation Division and private operators. The Arch Hurley district, also known as the Tucumcari Project, was authorized by the New Mexico Legislature in 1937, but construction was not completed until 1954. Irrigation of 42,321 acres is authorized, but the average is under 30,000, and the district has been chronically affected by drought.

Under the Canadian River Compact, New Mexico has free use of the Canadian for water originating above Conchas Dam and is entitled to 200,000 acre-feet of conservation storage for water originating in the Canadian River drainage basin in New Mexico below the dam. Ambiguities in the Compact sent the states of Oklahoma, Texas, and New Mexico to the Supreme Court in 1991. The Court determined that Ute Reservoir's capacity was limited to stored water not to exceed 200,000 acre-feet. Inflow to Conchas is reliant on rainfall and several years of persistent drought have taken a toll.

Under the Canadian River Compact, New Mexico has free use of the Canadian for water originating above Conchas Dam...

Pecos River Basin

Storrie Lake

Capacity: 22,900 acre-feet

Responsible agency: Storrie Project Water Users Association

Storrie Lake is a small reservoir just north of the City of Las Vegas, owned and managed by the Storrie Project Water Users Association. Water from the Gallinas River, tributary to the Pecos, is stored here and used primarily for irrigation. Water from the reservoir is also used for municipal purposes by the City of Las Vegas, and Storrie is operated for municipal purposes in conjunction with Bradner and Peterson Reservoirs. Bradner and Peterson are the city's primary reservoirs, and Storrie is a back-up, connected to them by a pipeline. Storrie becomes a critical component of the water supply system when Las Vegas is in a drought. Storrie was the subject of a dispute over public access to the lake in 2010, but the New Mexico State Parks Division of the New Mexico Department of Energy, Minerals and Natural Resources and the Storrie Project Water Users Association negotiated an agreement for a three-year lease, providing the parties time to reach a permanent agreement.

Storrie was the subject of a dispute over public access to the lake in 2010

Lower Pecos Reservoirs

Santa Rosa Reservoir

Capacity: 438,364 acre-feet flood storage; 92,236 acre-feet conservation storage (irrigation)

Storage as of September 23, 2014: 72,106 acre-feet

Responsible agency: U.S. Army Corps of Engineers

Authorizations: 52 Stat. 1224; 68 Stat. 1260; 94 Stat. 520

Sumner Reservoir

Capacity: 93,828 acre-feet flood storage; 40,398 acre-feet conservation storage (irrigation)

Storage as of September 23, 2014: 36, 325 acre-feet

Responsible agency: U.S. Bureau of Reclamation

Authorizations: November 6, 1935; Flood Control Act of 1939.

Brantley Reservoir

Capacity: 414,466 acre-feet flood storage; 40,000 acre-feet conservation storage (irrigation)

Storage as of September 23, 2014: 58,000 acre-feet

Responsible agency: U.S. Bureau of Reclamation

Authorizations: PL 92-514 (1972)

Lake Avalon

Capacity: 4,446 acre-feet; 3,866 acre-feet conservation storage (irrigation)

Storage September 23, 2014: Capacity (4,466 acre-feet)

Responsible agency: U.S. Bureau of Reclamation, built in 1907

Santa Rosa Reservoir, Sumner Reservoir, Brantley, and Avalon reservoirs are operated as a system for the Carlsbad Project, which primarily serves the Carlsbad Irrigation District (CID). The Carlsbad Project was originally authorized on November 28, 1905. The storage capacity of the Carlsbad Project is variable, depending upon the storage and operations

in each of the Carlsbad Project reservoirs. The total annual allowable storage as defined by the Pecos River Compact is 176,500 acre-feet, which is the maximum conservation storage allowed for irrigation. Each reservoir is constrained by its own conservation storage limits, with a portion of its storage space allocated for flood control. As on the Rio Grande, many agencies and interests are involved in decision-making on the Pecos.

Generally, water is kept in Santa Rosa and Sumner to take advantage of lower evaporative losses. This keeps capacity available in Brantley to capture runoff from monsoon season rainfall. When CID needs water for irrigation, water is moved to Brantley. Avalon is a small reservoir used for staging releases from Brantley for use by CID.

In the case of flood control operations by the Corps of Engineers and Reclamation, if a reservoir's conservation storage limits are exceeded, inflows are bypassed. Another driver is the Pecos Compact and the 1988 *Texas v. New Mexico* U.S. Supreme Court Amended Decree. In 1988 the U.S. Supreme Court held that New Mexico had under-delivered to Texas from 1950 to 1983 by about 10,000 acre-feet per year. New Mexico had to pay Texas $14 million and the Court mandated that New Mexico not fall behind on its required deliveries. Spills from Carlsbad Project storage are one source for meeting the delivery requirement. Another operational factor on the Pecos is how to augment flows for the endangered Pecos bluntnose shiner while conserving Carlsbad Project water supplies.

Irrigation in the Pecos Valley is not limited only to the Carlsbad area. Fort Sumner Irrigation District is located downstream from Sumner Dam and irrigates approximately 6,000 acres out of 10,000 authorized by its diversion right, which is a direct flow right of the natural river flow up to 100 cfs.

Another driver is the Pecos Compact and the 1988 *Texas v. New Mexico* U.S. Supreme Court Amended Decree.

The Pecos Valley Artesian Conservancy District (PVACD) relies on ground water and irrigates approximately 100,000 acres on the west side of the river from Roswell to south of Artesia. The Hagerman Canal supplies water to approximately 9,000 acres in the PVACD using a combination of surface-water diverted from the Rio Hondo and groundwater pumped from the Roswell basin. CID irrigates approximately 20,000 acres a year out of a total of 25,055 authorized by the Carlsbad Project.

The complex history of the Pecos Basin's development and history of water issues and litigation is fascinating and also critically important to understanding the current posture of water administration, not only in the Pecos, but throughout the state. The legal imperative to make deliveries to Texas and avoid priority administration has cost the State about $100 million. Currently, the Lower Pecos

The complex history of the Pecos Basin's development and history of water issues and litigation is fascinating, and also critically important to understanding the current posture of water administration not only in the Pecos but throughout the state.

The history of the Pecos Basin development and Compact difficulties is summarized in a readable summary by retired Representative Joe Stell in the first edition of *Water Matters!*

Basin Commission (an *ad hoc* group of water users advisory to the Interstate Stream Commission) has been advising the Interstate Stream Commission and federal agencies on compliance with the Compact. A settlement agreement on water rights was reached in 2003 and measures have been implemented such as the purchase of 18,000 acres of farmland. The Pecos presents an example of a successful regional cooperative approach to settling water rights, addressing endangered species, and meeting Compact deliveries.

The history of the Pecos Basin development and Compact difficulties is summarized in a readable summary by retired Representative Joe Stell in the first edition of *Water Matters!* For new Legislators, we recommend his article and also, for a more detailed discussion, the book HIGH AND DRY by Emlen Hall.

After flowing through New Mexico and Utah, the San Juan joins the Colorado River at Lake Powell.

Colorado River Basin

NAVAJO RESERVOIR

Capacity: 1,708,600 acre-feet

Storage as of September 2014: 1,074,000 acre-feet

Responsible agency: U.S. Bureau of Reclamation

Authorizing legislation: Colorado River Storage Project Act of April 11, 1956 (70 Stat.105); Act of June 13, 1962

Navajo Dam was constructed in 1962 on the San Juan River, a tributary of the Colorado River, pursuant to the Colorado River Storage Project Act. The San Juan River originates in southern Colorado and runs westward from the Continental Divide into New Mexico. After flowing through New Mexico and Utah, the San Juan joins the Colorado River at Lake Powell. Navajo Dam is located about thirty miles east of Farmington.

Navajo Dam and Reservoir are owned, operated, and maintained by Reclamation. Water is released primarily for irrigation, for municipal and industrial purposes, and for hydropower generation by the city of Farmington. In addition to regulating the flows of the San Juan River, Navajo Reservoir is the principal storage reservoir for the Navajo Indian Irrigation Project (NIIP). Water is released through a tunnel into a long aqueduct for use on the NIIP to irrigate about 110,000 acres of land on the Navajo Indian Reservation.

Navajo Dam is subject to the terms of the Upper Colorado River Basin Compact, the Colorado River Storage Project Act, and the act authorizing the San Juan-Chama Diversion and Navajo Indian Irrigation Project. It provides irrigation and municipal and industrial water supply, flood control, recreation, hydropower, and fish and wildlife benefits.

The San Juan Basin Recovery Implementation Program was initiated in 1992 to address two endangered fish in the San Juan below Navajo, and operations of the reservoir are affected by this Program. All of the federal agencies, the State of New Mexico, and major water rights interests are represented. The purpose is to work together to protect and promote recovery of the endangered fish without impairing water users. The Program has been considered to be a successful approach to addressing the endangered species issues on the San Juan.

In 2003, in the face of anticipated water shortages, the major water users in the San Juan Basin came together and developed a sharing of shortages agreement. Public Service Company of New Mexico, Arizona Public Service, and BHP Billiton reached agreement with the Navajo Nation, the Jicarilla Apache Nation, and others for alternative water administration and operation of Navajo Dam in the event of shortages. The agreements were accepted and supported by the Interstate Stream Commission and Reclamation.

In 2003, in the face of anticipated water shortages, the major water users in the San Juan Basin came together and developed a sharing of shortages agreement.

Conclusion

This article is a snapshot of New Mexico's major reservoirs. It only touches the surface of the myriad issues that confront the owners and managers of these reservoirs. As New Mexico moves into future challenges of scarce and extremely variable water supplies, it will become more important than ever to use and manage our reservoirs wisely.

By Susan Kelly, Esq. (2011)
Update by Diego Urbina (2014)

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Navajo-Gallup Water Supply Project

> "It's hard to believe that in this country at this time in our history we still have people having to haul water every day, but that's the unfortunate reality in parts of our state."
>
> Senator Jeff Bingaman, *Albuquerque Journal,* December 9, 2010

> "Our underground water is being used up. It is not replaced from natural sources. City water shortages in the not-too-distant future are predicted by experts."
>
> City of Gallup 2012 Annual Water Quality Report

In March of 2009, the Congress passed and President Obama signed into law the "Omnibus Public Land Management Act of 2009." Several New Mexico projects are authorized in the law, notably the authorization of the Navajo-Gallup Water Supply Project (Project), a part of the Navajo Nation water rights settlement for claims in the San Juan River Basin within New Mexico.

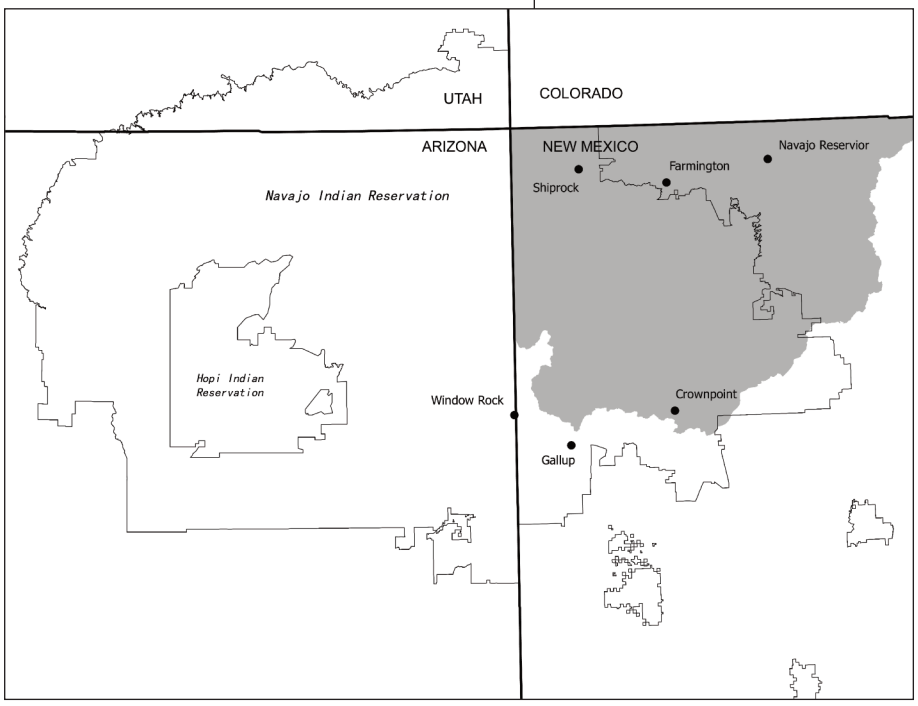
The Project is a major endeavor for northwestern New Mexico. In one sense, authorization of the project culminates years of work. In another sense, it means the beginning of many additional years of effort. There is much to be done to construct and carry the project forward to reality, including work for the federal government, the State of New Mexico, the Navajo Nation, and the city of Gallup.

When complete, the project will provide 37,376 acre-feet of water annually from the San Juan River Basin in New Mexico to the city of Gallup (Gallup); more than 43 Navajo chapters, including Fort Defiance service area in Arizona; and the Teepee Junction area of the Jicarilla Apache Nation. These areas rely on rapidly depleting groundwater of poor quality. Projections have this water supply supporting a future population of about 250,000 people by the year 2040.

In view of the Project's magnitude, this article reviews only its major aspects.

Need for the Project

Navajo communities and Gallup rely on a disappearing groundwater supply. Many Navajo families must truck their water for many miles. Other water sources are needed to meet both current and future domestic, municipal, and industrial requirements within the service area. The Project will bring a reliable supply of water to these areas by means of diversions and pipelines from the San Juan River.



Navajo Nation and San Juan Basin in New Mexico

Navajo Nation Department of Water Resources

The United States, for the Navajo Nation, has asserted a substantial claim to water in the San Juan, with a priority date of June 1868 under the *Winters* doctrine.

In the Navajo Nation a growing population, inadequate infrastructure, and widely dispersed communities and households have created an urgent need for an accessible, adequate water supply. Between 30 and 40 percent of households on the Navajo Reservation do not have direct access to public water systems, and the tribal population is expected to increase to nearly 500,000 by 2040.

Meanwhile, the city of Gallup's groundwater is being mined; that is, it is being depleted faster than it is being recharged. In addition, other water available for city use does not meet secondary drinking water quality standards. Severe water shortages are anticipated within the next decade. Although Gallup stands atop geologic formations that contain water, only a tiny fraction of that water can affordably be accessed for municipal needs. The city has a well field several miles to the north, at Ya-Ta-Hey, where the water table is declining by twenty feet per year and water quality is worsening. Local efforts are being made to protect the supply and improve the system, but Gallup's citizens have become painfully aware that if something is not done soon, their water source is likely to go dry in the next ten to fifteen years.

The Jicarilla Apache Nation also needs a reliable, high-quality water supply in areas outside Dulce, in north-central New Mexico, so that tribal members can continue to diversify their on-reservation economy and live in a more dispersed manner—as they did traditionally.

San Juan River Water Rights

The San Juan River, an "Upper Basin" tributary of the Colorado River, drains nearly 16 million acres in the Four Corners area before flowing into Lake Powell. Under the Upper Colorado River Compact of 1948, New Mexico received 11.25 percent of the Upper Colorado River Basin's yield. On average, this percentage amounts to 669,000 acre-feet available for consumptive use annually. In times of drought, however, the amount available is less. This allocation is a relatively large share of the river supply, when compared to the allocations of other states on the Colorado, inasmuch as only 3.25 percent of the river's flow originates in New Mexico. The state's allocation is intended, in part, to fulfill the water rights of the Navajos and other Native Americans in the region.

Many of the non-Indian surface water claims in the San Juan River basin in New Mexico were adjudicated in the Echo Ditch decree of 1948. On behalf of the Navajo Nation, the United States filed a Statement of Claims in January 2011 based on a substantial Winters doctrine claim to water in the San Juan River—over 900,000 acre feet annually with an immemorial priority date . The right and claim are based in federal law. The amount claimed was based on "practicably irrigated acreage" (PIA) and the priority date was the date of the Navajo Reservation's creation. Because the Navajo Nation was not a party to the Colorado River Compact of 1922, its claim remained unquantified although its rights are clearly senior to all other rights on the river. This lack of quantification has cast a shadow of uncertainty over all water rights in the San Juan system. In 1995, however, the Navajo Nation and the State began to negotiate a settlement rather than litigate to resolve the issues among the various water users in the region. For more information, please see the chapter "American Indian Water Rights" in this edition of Water Matters!.

Settlement Agreement

The Navajo Nation and New Mexico entered into negotiations in 1995 and reached the Navajo Nation Water Rights Settlement Agreement for the Nation's water rights in the New Mexico portion of the San Juan River in April of 2005. The United States Congress ratified the Settlement Agreement in the 2009 Northwestern New Mexico Rural Water Projects. The settlement agreement was subsequently reconciled with the Act and signed by all the settlement parties in December of 2010. The adjudication court entered the final decree on November 1, 2013. It has since been appealed.

The Settlement's centerpiece is the Project which involves the construction of pipelines and treatment plants for water from the San Juan River. The Nation also negotiated for tribal water development projects. In exchange, it released claims to water that might otherwise displace non-Indian users in the San Juan stream system. The Settlement was meant to resolve the Navajo Nation's water rights without litigation while supplying water to Gallup and the Teepee Junction area of the Jicarilla Apache Nation.

Amount of Water

The San Juan River Settlement allocates water from the San Juan River to the Navajo Nation for its lands in New Mexico. The settlement includes many uses already allocated to the Nation. The only major new water use is the amount designated for the Project. The Project will deplete approximately 23,120 acre-feet of surface-water annually from the San Juan. Gallup does not hold water rights in the San Juan River system and must lease or buy its water from others, possibly the Jicarilla Apache or Navajo Nations.

The Authorized Project

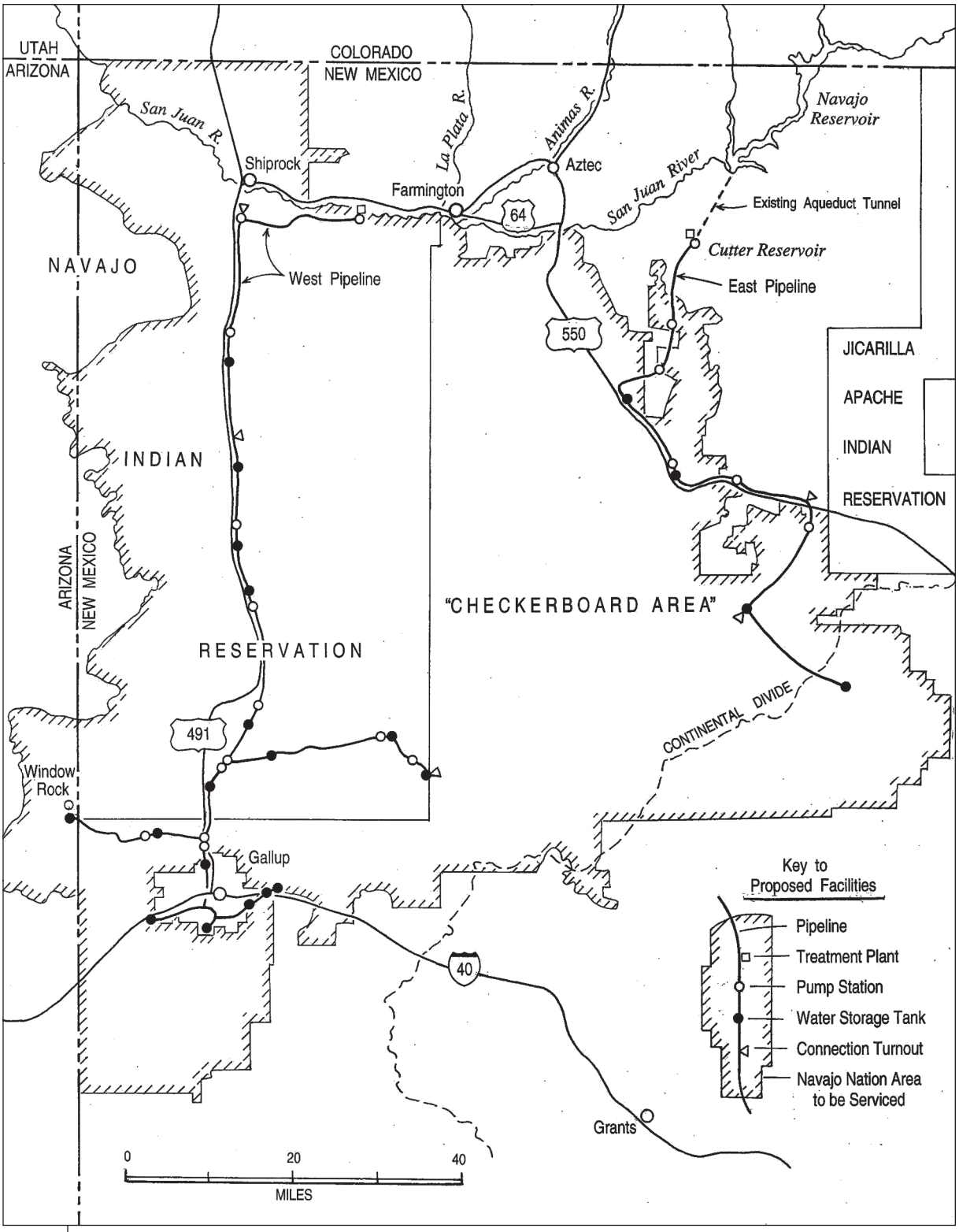
The Navajo-Gallup pipeline project will divert water from the San Juan River at two points and deliver it southward through two lengthy pipelines (see map on the next page). The eastern pipeline will begin at the existing Cutter Reservoir, an adjunct of Navajo Reservoir, and will convey water southward, partly alongside Highway 550, to serve nearby Navajo communities and the southern part of the Jicarilla Apache Nation. The western pipeline will divert water from the San Juan River at the existing Public Service Company of New Mexico San Juan Generating Station Diversion and will convey water alongside Highway 491 south toward Gallup. Here, too, Navajo communities will be served, as well as the city. A water purification plant will be built at the head of each pipeline.

A spur pipeline will serve Window Rock, Arizona, which is the capital and one of the larger communities of the Navajo Nation. The water delivered to Window Rock, however, will be accounted for as Lower Colorado River Basin water reserved for the Navajos by the 2004 Arizona Water Settlements Act, or as water of Arizona's Upper Basin allocation, not New Mexico's.

Costs

In 2008, the cost of the pipeline project was estimated at $870 million. The Omnibus Act authorized that amount for appropriation and expenditure by the U.S. Bureau of Reclamation (Reclamation) as the project is constructed. The project is expected to have an indexed cost of around $1 billion— based on October 2011 prices—when it is completed in 2024. Gallup and the Jicarilla Nation are obligated to repay portions of the construction cost over time. The State's cost share is $50 million, most of which has already been contributed.

The Navajo-Gallup pipeline project will divert water from the San Juan River at two points and deliver it southward through two lengthy pipelines.



Navajo-Gallup Water Supply Project

By Jerold Widdison for the Utton Transboundary Resources Center.

Adjudication

In 2013, the adjudication court considered objections to the Settlement Agreement and proposed decrees. The objections addressed the quantity of water allocated to the Navajos, the hydrological determinations regarding the water availability in the stream system, and the ability of the Nation to market water outside of New Mexico. In response to the initial objection regarding water availability, the New Mexico Interstate Stream Commission (ISC) clarified the hydrologic analysis and indicated that there is a 1-in-20 chance of a shortage that would necessitate a priority call. With regard to the objection about possible marketing strategies, the 2009 Omnibus Act forbids such transactions without approval from the New Mexico State Engineer and ISC water master. On November 1, 2013, the adjudication court entered the decrees adjudicating Navajo Nation's water rights in the San Juan River Basin in New Mexico, rejecting the objections to the Settlement Agreement and proposed decrees. In the first half of 2014, several parties filed appeals to the adjudication court's decision.

Legislation and Funding

Early on, New Mexico's senators had difficulty finding funding for the pipeline project. For several years, Senators Bingaman and Domenici (both now retired) worked to shepherd legislation through Congress to fund the Navajo, *Aamodt* and Taos *(Abeyta)* water right settlements. In 2007, Senator Domenici introduced the Reclamation Water Settlement Fund that would authorize a ten-year funding schedule to generate an estimated $1.37 billion to pay for the three settlements after they were signed into law. In 2009, Senator Bingaman included this funding mechanism in the Omnibus Public Land Management Act of 2009. When the Act became law it established the Fund that will be used to implement American Indian water right settlements; approved the Navajo New Mexico San Juan Basin settlement; and authorized the Navajo-Gallup Water Supply Project in the Northwestern New Mexico Rural Water Supply Project Act. The Reclamation Water Settlement Fund monies will be available, if needed, for the Navajo-Gallup project in 2020.

Survey work began in 2010 and construction must be substantially completed by 2024.

The Omnibus legislation authorized $870 million to be appropriated from FY2009 through FY2024 (subject to indexing for inflation). The Claims Resolution Act of 2010 authorized the transfer of funds from the Treasury to the Secretary of the Interior for deposit into the Reclamation Water Settlements Fund. From FY2010 through FY2013, Reclamation received $72.8 million in appropriated funds for the Project. In FY2014, it received $60.5 million. The FY2015 President's budget request to Congress includes a request for $81 million. Other funding will come from Gallup, the Jicarilla Apache Nation, and the State of New Mexico. The United States has entered into cost-sharing agreements with each of these entities

State Funding: The federal legislation requires a cost-share or contribution of $50 million from New Mexico. The State may also elect to contribute an additional $10 million for non-Indian ditch rehabilitation.

In 2005, the state legislature created the Indian Water Rights Settlement Fund to provide funding for the State's contribution to present and future Indian water right settlements. In 2007, the legislature appropriated $10 million for the Fund, but in 2009, withdrew the funds and authorized Severance Tax Bonds in the same amount. The ISC certified the sale of the $10 million in bonds to the Board of Finance in June of 2011. In 2011, the legislature appropriated $15 million and, in 2013, another $10 million. Any amount remaining unappropriated by the State in 2017 for this Settlement will be indexed for inflation.

Survey work began in 2010 and construction must be substantially completed by 2024.

As of 2014, the State has provided $13.6 million in cash contributions which it has requested that Reclamation credit toward its cost-share requirement. In addition, Reclamation is reviewing the State's request for credits of $15.8 million it has expended for completed work that reduces the cost of the Project. These credits represent State appropriations made previously for clean water supplies for Navajos and non-Indians in the "checkerboard" area.

Implementation and Construction

It is said that once Congress approves and the President signs a settlement, the real work begins. To implement the settlement, the agreement must be conformed to the federal legislation; many agreements must be executed; construction must be completed; and the state adjudication court must enter final decrees.

As of 2014, all the pre-construction work has been completed. Department of the Interior Secretary Ken Salazar signed the Environmental Impact Statement in 2009. The final Settlement Agreement, conformed to the requirements of the 2009 Omnibus Act, was signed by the settlement parties in 2010. Many of the required agreements were executed in 2011, including the cost-share agreement between the state and the United States. The state adjudication court completed the inter se phase of the adjudication of the Nation's rights and entered the partial final decree and supplemental decree on November 1, 2013.

Reclamation is overseeing the Project construction. It began survey work in 2010 and Reclamation-funded construction will be in progress by the end of 2014 on the Cutter Lateral and the San Juan Lateral. The project includes approximately 280 miles of pipeline, two water treatment plants, several pumping plants, and several storage tanks. It is being built in sections that will be connected later. By choosing this course of action, water can be delivered to people more quickly than if the system were built as one continuous line. In October 2013, President Obama announced that the Navajo Gallup Water Supply Project will be expedited through the permitting and environmental review process. The status of the project can be monitored on the Federal Infrastructure Projects Dashboard. Construction must be substantially completed by 2024.

Cutter Lateral: The Cutter Lateral will run along Highway 550 to the south of Farmington. The Nation will receive $43 million in a financial assistance agreement to design, construct, and oversee 43.4 miles of the Cutter Lateral lower section. This work will extend from near the community of Counselor to existing distribution systems in Ojo Encino, Torreon, and Pueblo Pintado. It includes a pipeline, a pumping station, and four storage tanks. Design work has begun, the first construction contract under the financial assistance agreement will be awarded in the fall of 2014, and this part of the project could be delivering treated surface water by 2018. Reclamation will be responsible for constructing the upper reaches of the Cutter Lateral and the treatment plant.

San Juan Lateral: The first construction contract for work on the San Juan Lateral was awarded in April 2012 for a four-mile stretch of pipeline and a facility near Tohlakai Hill, about eight miles north of Gallup. Groundbreaking occurred on June 2, 2012. The plans include tapping into an interim groundwater supply as the project moves north to the San Juan River so that the completed system can begin deliveries to communities along the way by 2015 or 2016.

Navajo Water Rights Settlement and Navajo-Gallup Water Supply Project – What the Omnibus Act Says

Navajo Nation ("Nation") Water Rights

Sec. 10701

- Congress approves, ratifies, and confirms San Juan River Settlement Agreement in 2009.
- Secretary and Nation execute contract in 2010.
- Court to enter Partial Final Decree on Nov. 1, 2013.

Sec. 10702

- Establishes trust fund for Nation's water resources development, but funds are not available to Nation until 2020. This is not the same fund as the settlements fund noted below.

Sec. 10703

- Nation waives all claims to other San Juan Basin water rights.

Reclamation Water Settlements Fund

Sec. 10501

- Establishes a fund within the U.S. Treasury, to consist of $120 million plus interest, to be deposited in each of FYs 2020–2029 (from revenues that would otherwise be deposited in the Reclamation Fund). The same amount may be expended in each of those years for the following projects (spending to be in priority order 1 through 4):
  1. Navajo-Gallup ($500 million total for 2020–2029).
  2. *Aamodt and Abeyta* (in each year, sufficient amounts to pay federal share of implementing settlements if annual appropriations are not otherwise available, if settlements are approved by Congress).
  3. Montana Indian settlements (not detailed here).
  4. Arizona-Navajo Lower Colorado River settlements (not detailed here).

Navajo-Gallup Water Supply Project

Sec. 10602

- Authorizes the Secretary of the Interior (through Reclamation) to design, construct, operate, and maintain the project.
- Requires environmental compliance.
- Requires the State of New Mexico to provide a $50 million share of construction cost.
- Authorizes conveyance of facilities to Gallup and Nation, under several conditions.

Sec. 10603

- Allows incidental generation of hydropower, with proceeds going to the Nation.
- Authorizes diversions from San Juan River and Navajo Reservoir: 37,760 acre-feet per year, or river depletion of 35,890 acre-feet per year.
- Authorizes diversion of 6,411 afy for use by Nation in Arizona (at Window Rock).
- Diversions are to be used in New Mexico and charged against the New Mexico consumptive use apportionment made in the Colorado River Compact.

Sec. 10604

- Authorizes a contract between the United States and the Nation. Construction costs applicable to the Nation are not to be reimbursed by the Nation. Operations and maintenance costs are to be paid by the Nation but may be waived for ten years.
- Authorizes a contract between the United States and Gallup. The city is required to pay its share of construction and operations and maintenance costs, within a fifty-year period, except Gallup is not required to pay more than 35 percent of allocable share of construction costs. The city is to obtain rights to use the water it receives.
- Authorizes a contract between the United States and the Jicarilla Apache Nation. Payment terms are similar to Gallup's listed above.

Section 10609

- Authorizes appropriation of $870 million for 2009 thru 2024 (subject to inflation index adjustment) to plan, design, and construct facilities. Additional sums for operations and maintenance are authorized for ten years following completion.
- Participants' construction committee is to be formed.

Section 10606

- Reclamation is to assist the Nation with construction/rehab of conjunctive use wells; $30 million authorized.

Section 10607

- Reclamation is to assist the Nation with rehabilitation of existing on-reservation San Juan irrigation projects; $23.1 million authorized.

The San Juan Basin Adjudication

As a condition of the Settlement Agreement and the 2009 Omnibus Act, the New Mexico state court in the San Juan adjudication must enter one or more final decrees determining the Navajo Nation's water rights. Prior to the launching of the inter *se* proceedings, the settling parties held five public meetings in a variety of communities in the basin to explain the Settlement. After the parties briefed the issues, the court entered the Navajo Nation decrees on November 1, 2013. These decrees have been appealed.

By Jerold Widdison, (2007)

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Darcy S. Bushnell, Esq., *American Indian Water Right Settlements,* **http://uttoncenter.unm.edu/pdfs/american_indian_water_right_settlements.pdf**

The San Juan Adjudication website, Stell Water Ombudsman Program, **http://uttoncenter.unm.edu/ombudsman/san-juan.php**

Contributors

Christopher Banet, Bureau of Indian Affairs, Southwest Regional Office, Branch of Water Resources

Stefanie Beninato, Ph.D., J.D.

Darcy S. Bushnell, Esq.

Amy Haas, Esq. Chief Counsel, NM Interstate Stream Commission

John Leeper, Ph.D., P.E., formerly of Navajo Nation, Department of Water Resources.

Pat Page, P.E., Deputy Construction Engineer, Four Corners Construction Office Bureau of Reclamation.

Arianne Singer, Managing Attorney, NNM Adjudication Bureau, N.M. Office of the State Engineer.

Stephanie Tsosie, University of New Mexico School of Law, Class of 2015

"The State, local and Pueblo government parties to the Aamodt case, most irrigators and other people residing in the Basin, support settlement as a way to make a better future together."

Peter C. Chestnut,
Attorney for Pueblo
de San Ildefonso

Nambé, Pojoaque, San Ildefonso, and Tesuque Pueblos' Settlement

2014 Status Bar

Pueblos' Water Rights - Court

- Aug. 8, 2014 Court enters procedural order re Objections proceedings. Requires parties to sign up for electronic service of court documents.
- Apr. 7, 2014 Objections deadline. Nearly 800 filed.
- Feb.–Apr. 2014 Public meetings, workshops and office hours held to inform claimants about requirements of Order to Show Cause (OTSC).
- Jan. 2014 OTSC, Objection, and Acceptance forms mailed to nearly 7,000 claimants.
- Dec. 2013 Court enters OTSC why it should not adopt the Pueblos' Water Rights Settlement and enter the Final Decree.

Pueblos' Water Rights - USBR

- Significant progress on planning and designing Regional Water System.
- Pilot water treatment plant study begun
- Photos and surveys of topography completed
- Surveys for cultural resources, species, and existing structures completed
- Studies on soil properties completed
- USGS and USBR continue to study long-term storage options.
- Inventory of existing infrastructure begun
- EIS started in 2012 continues

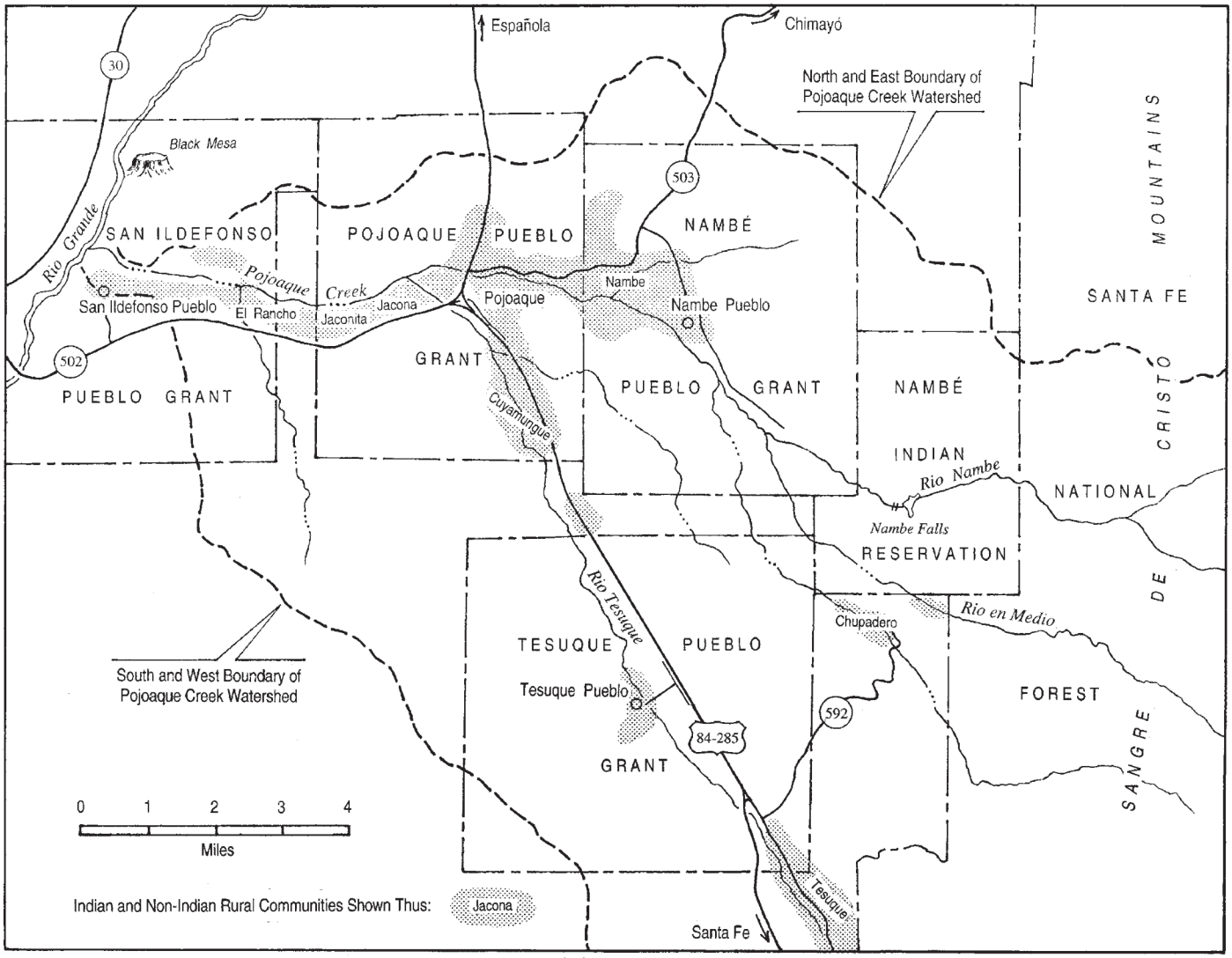
Non-Pueblos Water Rights

- Well adjudication continues.
- Court orders briefing on shared wells issue.

The "*Aamodt* case" is a complex, long-running adjudication of water rights in the Pojoaque River watershed northwest of Santa Fe. In 1966, it was filed in federal court as *State of New Mexico, ex rel. State Engineer, et al. v. Aamodt, et al.* The parties include the State, through the State Engineer, about 5,600 non-Indian claimants, the Pueblos of Nambé, Pojoaque, San Ildefonso, and Tesuque, and governmental entities such as the county of Santa Fe, many acequias, the Pojoaque Valley Irrigation District, and several federal and state agencies. The rights being adjudicated include, but are not limited to, State water rights of non-Indians and government agencies for irrigation, domestic, and commercial uses as well as the federal water rights of the Pueblos to historic, present, and future uses.

In 2006, after many decades of litigation and six years of negotiations, the settling parties completed and sent the *Aamodt* Litigation Settlement (Settlement) to Congress for approval and funding. The Settlement recognizes the Pueblos' water rights and provides benefits for the non-Pueblo communities. Congress's approval of the settlement was granted in the 2010 Claims Resolution Act. This Act also authorized several other tribal water right settlements. After the parties reconciled the Settlement with the Claims Resolution Act, the Settlement was signed by the Secretary of the Interior, Pueblo leaders, and state officials on March 14, 2013. Then the implementation phase began.

Implementation of this Settlement involves several steps which include, but are not limited to, completion of the *inter se* phase for the Pueblos' water rights and entry of a final decree; completion of the non-Indian domestic wells, the *inter se* phase for the non-Indian water rights, and entry of their final decree; completion of the Environmental Impact Statement by the Bureau of Reclamation; completion of several key documents; and the construction of a



Pojoaque Creek Watershed
(*Aamodt* Adjudication)

By Jerold Widdison
for the Utton Transboundary Resources Center.

regional water system. Construction of the system depends on the adoption of the settlement by the Court.

Today the Court is conducting the *inter se* phase for the Pueblos' water rights; the state is conducting the adjudication of domestic wells; Reclamation is conducting the environmental compliance studies; and the settlement parties are working on the key documents.

The Court must enter the final decrees by September 15, 2017.

Background for the Adjudication

Aamodt has its roots in the planning of the San Juan-Chama Diversion Project during the 1960s. These plans allocated modest quantities of San Juan-Chama imported water to several northern watersheds that feed the Rio Grande. The Rio Pojoaque Basin was one of these "tributary irrigation units." These watershed areas were to receive the proposed new water by diversion from the Rio Grande or by substitution and/or exchange.

Infrastructure projects were proposed for the tributary units. All except the project in the Rio Pojoaque stream system were dropped because of local opposition or other factors. The Nambé Falls Dam was built in the upper part of that watershed, and its storage reservoir now provides supplemental irrigation water to the Pojoaque Valley Irrigation District and the Pueblos of San Ildefonso, Nambé, and Pojoaque.

In order to properly distribute and account for the imported water, the Office of the State Engineer (OSE) initiated water right adjudications to create water use inventories on each of the northern major tributaries to the Rio Grande. In 1952, Congress passed the McCarran Amendment, which waives federal sovereign immunity so that the federal government's and the Pueblos' water rights could be determined in state courts. That concept was not fully understood in the late 1960s, so these tributary cases were filed in federal court.

The *Aamodt* case was the first of the major tributary watershed adjudications to be filed in federal court in New Mexico. The OSE finished the hydrographic survey of non-Indian surface-water rights and filed it with the federal court shortly after the case began in 1966.

The elements of non-Indian water rights are determined under state law.

Adjudication Process

The adjudication of water rights has three basic stages. It begins with 1) a hydrographic survey of all water uses in an area; proceeds to 2) negotiation and resolution between the state and each claimant; and is followed by 3) notice and an opportunity for all claimants, Pueblo and non-Indian alike, to object to any agreement reached between the State and any other claimant. After all differences are resolved, the court enters a final decree. This system of adjudication is generally applied to both non-Indians and Indian claims. For more information, please see the chapter "Adjudications" in this edition of *Water Matters!*.

Non-Indian Claims

The elements of non-Indian water rights are determined under state law. These rights have a priority of the date of first use or, in the case of an OSE permit, the date of application and a measure of actual historic, beneficial use. In the adjudication of Aamodt non-Indian claims, the surface-water irrigation claims were addressed first. Most of the work on these claims was completed by 1969, except for the priority dates of the acequia and ditch water rights. The court and parties are presently working on adjudicating the priority element for one last acequia in the Chupadero area.

Following the adjudication of surface-water rights, the Aamodt court decided that domestic well rights also should be adjudicated. Consideration of these claims began in the 1980s and is nearing an end today. The court has entered subfile orders for most of the domestic well rights, and the

The *Aamodt II* court held that different rules apply to Pueblo grant land water rights because these lands have always been owned by the Pueblos, were never a part of the public domain, and because the Treaty of Guadalupe Hidalgo of 1848 preserved the property rights of owners of land.

focus is now on determining the unusual water rights, such as multi-household wells, and any newly discovered domestic well rights which tend to have pre-basin water rights.

The court has limited water use in some non-Pueblo domestic well rights. In 1983, it required the OSE to restrict new domestic well permits in the Pojoaque Basin to indoor use only. In 1999, a "Post-1982 Domestic Well Stipulation and Settlement Agreement" was developed to modify that ruling and allow outdoor use in exchange for mandatory metering, reporting, and usage limited to no more than 0.7 acre-feet per year per household. Owners of approximately one-third of the post-1982 domestic wells joined this settlement.

Pueblo Claims

The court and parties began working on the water rights of the Pueblos of Nambé, Pojoaque, San Ildefonso, and Tesuque in about 1969. Among the first issues considered by the court were whether Pueblo rights are determined under state or federal law and whether Pueblos have a right to private counsel, separate from that provided by the U.S. Department of Justice. The Tenth Circuit Court of Appeals *(Aamodt I)* held that the Pueblos' water rights are to be determined under federal law and that the Pueblos are entitled to separate counsel. This decision was not reviewed by the United States Supreme Court.

In its 1985 *Aamodt II* opinion, the adjudication court further developed the legal foundation for determining the Pueblos' water rights. Pueblos primarily own land grants and, only secondarily, reserved lands. The federal law for water associated with reserved lands is fairly well-developed and is expressed in the *Winters* Doctrine. Under the *Winters* Doctrine, Indian water rights have a priority date based on the date the reserved lands were set aside from the public domain. The amount of water is based on what is necessary to satisfy the purposes of the reservation. For tribal reservations, that measure has typically been determined by the amount of water necessary to irrigate all practicably irrigable acreage. It is not measured by actually irrigated acreage.

The *Aamodt II* court held that different rules apply to Pueblo land grant water rights because these lands have always been owned by the Pueblos, were never a part of the public domain, and because the Treaty of Guadalupe Hidalgo of 1848 preserved the property rights of owners of land grants. Therefore, the United States did not set aside their lands but rather recognized existing Pueblo ownership of those lands. Since the Pueblos owned their lands and used water prior to European colonization, the court held that the priority of the water rights is the first priority in the basin. This concept is variously expressed as "aboriginal priority," "first priority," or "immemorial priority." The practical effect is that in times of shortage, the Pueblos get all their water for their land grants before anyone else, unless the Pueblo and non-Indian communities together make other arrangements.

The court also held that the Pueblos' irrigation rights within the land grants were to be determined by the amount necessary to irrigate any and all lands under cultivation between 1848 (Treaty of Guadalupe Hidalgo) and 1924 (Pueblo Lands Act). This acreage is known as the "historically irrigated acreage" (HIA) and the theory behind it is known as the "Mechem Doctrine." *Aamodt* is the only case in which HIA has been used in quantifying Pueblo water rights. Although the District Court's opinion was appealed, the U.S. Appeals

Court declined to hear it, so the legal merits of HIA have never been reviewed by a higher court.

Under *Aamodt* rulings, the Pueblos were also entitled to replacement water rights for lands lost under the 1924 Pueblo Lands Act proceedings. Following several years of inconclusive litigation over replacement water right issues, the parties turned to settlement negotiations in 2000.

Settlement

The *Aamodt* settling parties, seven governmental entities, including the state, and representatives from the non-Indian community, began negotiations in 2000. By 2004, a settlement was drafted and presented to the public. The settlement featured a regional water supply system for both Pueblos and non-Indians. In this first version of the settlement, all non-Indians had to hook up to the water system. After review and public discussion, the settling parties returned to the table to address non-Indian communities' concerns and to remove the mandatory provision for water-system hookup. The State of New Mexico, Santa Fe County, City of Santa Fe, representatives from non-Indian communities, and the four Pueblos signed the 2006 Settlement Agreement and sent it to Congress. For more information about the settlement process, please see the chapter "American Indian Water Right Settlements" in this edition of *Water Matters!*.

In the spring of 2010, the Stell Ombudsman Program conducted eleven public meetings for the County of Santa Fe to explain the settlement agreement. In December of 2010, Congress passed the Claims Resolution Act, which approved the *Aamodt* and other settlements, and the President signed it into law. The parties then adjusted the 2006 Settlement Agreement to conform to the Act, and in March of 2013, the agreement was formally signed by the Secretary of the Interior, Pueblo leaders, and state officials. In the early months of 2014, the Stell Ombudsman Program held thirty public meetings and office hours for the county of Santa Fe to explain the settlement agreement. Other interests also held public meetings.

> The imported water is important to both Pueblos and non-Indians because it will reduce the current stress on the local aquifer by reducing dependency upon local groundwater.

The key provisions of the Aamodt settlement include:

- constructing a regional water system;
- providing non-Indians with a choice of whether to join the settlement, and upon joining, a choice of whether to hook up to the regional water system;
- relinquishing existing Pueblo claims against non-Indians who join the settlement;
- closing the basin to new water right development following the entry of a Pueblo final decree by the court;
- metering all water uses in the basin;
- limiting Pueblo water use; and
- protecting existing uses.

The Regional Water System is a pipeline and water-distribution system which will have capacity to deliver water from the Rio Grande to the four Pueblos and to non-Indian residents. The system provides 2,500 acre-feet per year for Pueblo consumptive use. Santa Fe County is allowed to "piggy back" on the system with an extension to serve non-Pueblo domestic well owners who choose to connect and all future water development. The county portion of the system will accommodate up to 1,500 acre-feet per year. The county must make its sizing decision by September of 2017. Water for the regional water system will be diverted from the Rio Grande through infiltration-well structures along the river banks on San Ildefonso Pueblo land above Otowi gage. This project is separate from Santa Fe's Buckman Diversion Project. The Bureau of Reclamation will build the system.

Claims Resolution Act, Congress appropriated $81.8 million of the federal contribution and authorized an additional $92.5 million.

The imported water is important to both Pueblos and non-Indians because it will reduce the current stress on the local aquifer by alleviating dependency upon local groundwater. Reduced stress will strengthen tributary stream flows, which supply acequias and support the riparian habitat in the watershed. The system will provide potable water in areas that have natural and manmade water quality issues and will provide water for fire suppression.

The system will also meet some trust obligations of the United States to the Pueblos with regard to their domestic water systems. In many instances, the Pueblo water systems use unsafe asbestos piping, do not include fire suppression infrastructure, and are generally inadequate for conditions of the twenty-first century. The parties to the settlement agree that construction of the pipeline is needed to provide a rural water supply to meet increasing water demands that cannot continue to be satisfied from available groundwater resources.

Project Authorization and Funding

Prior to the passage of the *Aamodt* Litigation Settlement Act, the cost estimate for the settlement in 2006 dollars was $177.3 million ($106.4 million for the federal contribution, $49.5 million for the state contribution, and $21.4 million for the county's contribution). This cost estimate is indexed to accommodate economic changes. The majority of the funding is for the construction of the regional water system and for the acquisition of water rights for the Pueblos. In the Claims Resolution Act, Congress appropriated $81.8 million of the federal contribution and authorized an additional $92.5 million.

In 2009, Congress authorized the "Water Settlements Fund" in the Omnibus Public Land Management Act. When originally proposed in 2007, this fund was intended to serve as the major federal funding vehicle for the three Indian water rights settlements in New Mexico: Navajo (San Juan River), *Aamodt* (Nambé, Pojoaque, and Tesuque stream systems), and *Abeyta* (Rio de Taos and Rio Hondo stream systems). The fund offers some potential funding for *Aamodt* in 2020.

The majority of the State's share of the funding remains to be appropriated. In 2007, the State made a "down payment" of $10 million to its Indian Water Rights Settlement Fund, to be used for the State's contribution for three Indian water rights settlements. In 2011, the Legislature appropriated $15 million in Severance Tax Bonds to the fund and in 2013, it appropriated $10 million. The total amount of State funding to date is $35 million. No funding was appropriated in 2014. The State's total contribution will be $130 million for the three settlements. This amount will be increased through indexing for inflation.

The *Aamodt* Litigation Settlement Act:

- expressly authorizes, ratifies, and confirms the Settlement Agreement;
- resolves the water right claims of the Pueblos;
- provides for implementation of a "Cost-sharing and System Integration Agreement" and an "Operating Agreement," between the governmental agencies and the Pueblos;
- provides that construction costs of the regional water system pertaining to the Pueblos are federal costs, which they will not have to reimburse and that costs pertaining to the County Utility are to be covered by state and local entities;
- allocates 1,079 acre-feet of San Juan-Chama contract water for use by the regional water system;
- provides that the Pueblos' share of San Juan-Chama costs is non-reimbursable;

- provides $56.4 million in funding now and authorizes an additional $50 million for construction of the regional water system to serve Pueblo and non-Indian residents;
- provides $25.4 million in funding now for acquisition of water rights and projects to improve existing Pueblo water supply infrastructure;
- authorizes an additional $42.5 million to assist with operation and maintenance of the regional water system; and
- allocates over 6,100 acre-feet of water to the Pueblos with various priority dates.

Implementation of the settlement and construction of the regional water system have begun. Reclamation has developed implementation plans, schedules, and milestones. It meets regularly with the settlement parties and the public as they negotiate the various agreements and processes required to carry out the project.

Settlement and the Court

Both the settlement agreement and the Aamodt Litigation Settlement Act require the court to consider objections and to decide whether to approve the settlement. Early in 2011, the settling parties formally notified the court that Congress had passed the Act. The court subsequently amended its 2007 Order describing the schedule and procedures for *inter se* and entry of the final decree, if approved. During the *inter se,* parties are allowed to challenge the proposed decree before the court decides whether to enter it.

Some non-Indians are opposed to the settlement. Just short of 800 objections were filed by the court deadline of April 17, 2014. They are concerned about the new system's water delivery costs, property tax implications, regulation, the adequacy of notice about the *inter se* phase, and possible increased development in the watershed. Others are concerned about curtailed development. Some residents oppose the settlement because of the way the negotiations were conducted. Many non-Indians who originally opposed the settlement now believe that their issues need to be resolved, not by opposing the settlement, but rather through discussions with Santa Fe County about decisions concerning the size and cost of the non-Indian portion of the system. Those who oppose the settlement may file objections with the court when it considers whether to adopt the settlement.

A number of non-Indians support the settlement. The reasons for support vary. The settlement is designed to protect existing water rights, particularly those of acequia members. It protects the water table by providing a means for reducing existing groundwater uses in the area, limiting the amount of water that can be drawn by existing users, and preventing additional new water withdrawals. This protection is intended to support stream flows upon which acequias depend. The settlement provides an alternative domestic water source for those who are concerned about manmade or naturally occurring pollution in their areas. It provides outdoor water use to those who are limited to indoor use from their domestic wells. It offers enhanced fire protection for non-Indians. It offers protection from Pueblo priority calls and from Pueblo *inter se* challenges. It can end the litigation.

If the court approves the settlement, the four Pueblos' water rights will be resolved. The final decree for all rights, both Pueblo and non-Indian, must be entered by September 15, 2017. If the court does not approve the settlement, the case will return to litigation in the United States District Court and undergo any subsequent appeals.

On December 3, 2013, the court entered an "Order to Show Cause" why it should not enter the decree. This order launches the *inter se* phase of the Pueblos' case. Objections to or acceptances of the settlement of the Pueblos' water right must be filed by April 7, 2014. At the same time, accepting parties who have domestic wells are required to make an

The settlement is designed to protect existing water rights, particularly those of acequia members.

Adapted from a manuscript by Peter C. Chestnut, Esq., who represents the Pueblo de San Ildefonso in the Aamodt case. The views expressed herein do not necessarily reflect the views of Mr. Chestnut or the Pueblo de San Ildefonso. (2009)

election about the future use of their wells and whether they will hook up to the county's part of the regional water system. The Utton Center's Stell Ombudsman Program will conduct up to 16 public meetings, workshops, and will hold office hour sessions to help the public understand the process and the choices that they will need to make.

Project Construction

Reclamation is building the Regional Water System. In September of 2012, Reclamation awarded the contract for completing an environmental impact statement to EMPSi, an environmental management and planning business with offices in Santa Fe. EMPSi has held several public meetings to inform people about the development of the environmental impact statement. In early 2013, Reclamation began collecting engineering and design information in the Pojoaque Basin. Public scoping meetings started in April of 2013 and continue today. Reclamation is working closely with the State, the County of Santa Fe, and the Pueblos as it plans, designs, and constructs the Regional Water System.

By Paul Bossert, Esq. (2009)

Latest Update by Sarah Armstrong, University of New Mexico School of Law, Class of 2015 (2013)

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Contributors

Edward Bagley, Special Assistant Attorney General, N. M. Office of the State Engineer (2012)

Kathy Dickinson, Reclamation's Project Manager, Pojoaque Regional Water System (2012)

Susan Kelly, J.D.

Jerold Widdison

Taos Pueblo Water Settlement

"The decades we have spent litigating and negotiating our water rights have put a tremendous burden on the Pueblo's scarce financial resources.... This adjudication commenced before our grandfathers successfully completed the 64-year struggle for the return to Taos Pueblo of the lands now known as the Blue Lake Wilderness Area."

Nelson J. Cordova, Taos Pueblo, before the Subcommittee on Water and Power, U.S. House of Representatives (September 9, 2009)

The Taos Valley lies between the Sangre de Cristo Mountains and the Rio Grande Gorge. It is laced with streams that rush from the mountains, flow across the valley, divide and subdivide for the benefit of agriculture, then converge as they plunge toward the Gorge. The major streams are the Rio Hondo, Arroyo Seco, Rio Lucero, Rio Pueblo de Taos, Rio Fernando de Taos, and Rio Grande del Rancho.

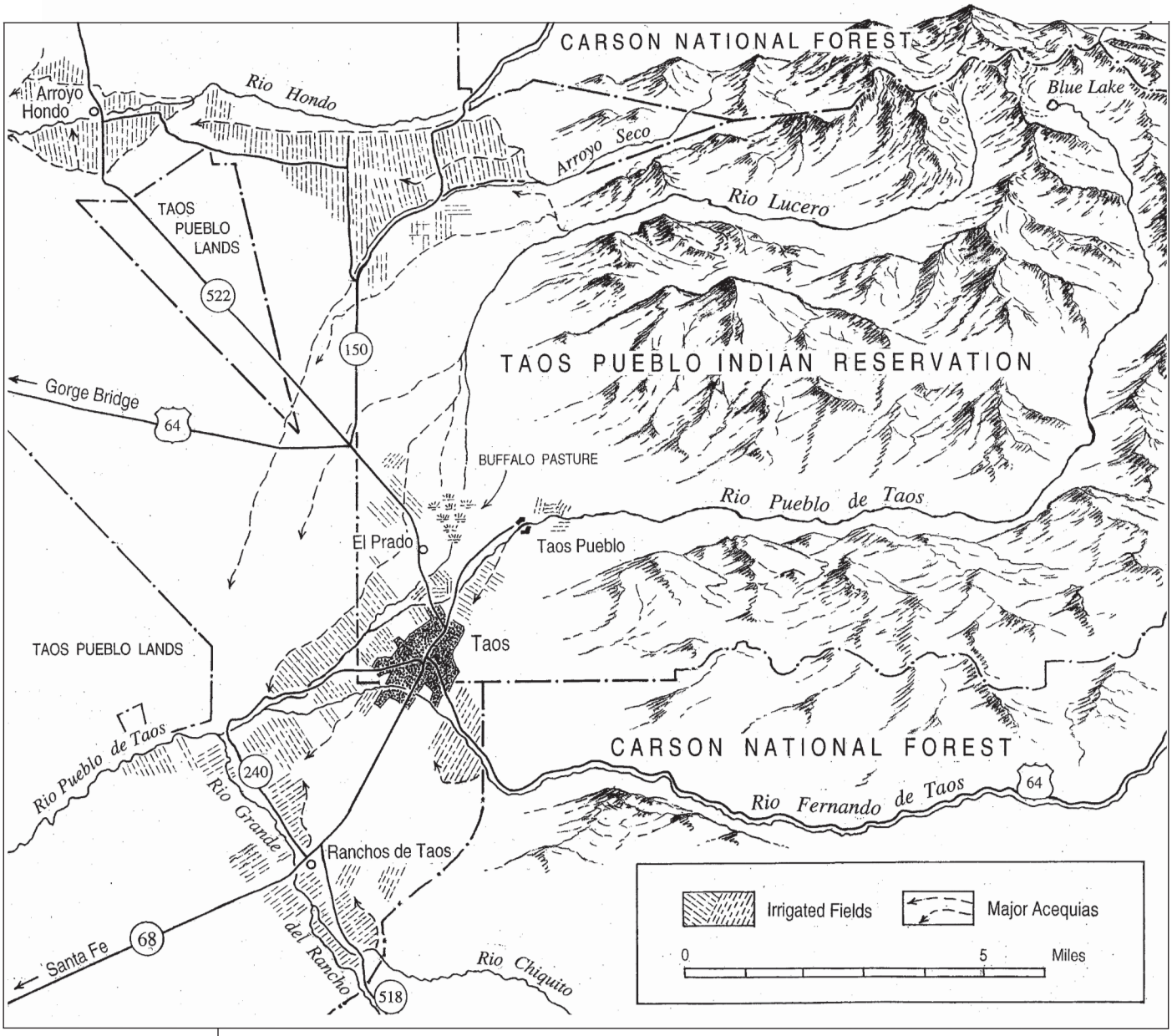
In November of 2010, the Congress passed the Claims Resolution Act and on December 8, President Obama signed it into law. Title V of the Claims Act, the Taos Pueblo Indian Water Rights Settlement Act, settles the Pueblo portion of the *Abeyta* case and approves an agreement signed in 2006 by officials from Taos Pueblo, the State of New Mexico, and other interested water rights owners in the Taos area. The settlement act also helps resolve the non-Indian portion of Abeyta. The measure quantifies Taos Pueblo's water rights and protects the interests of local acequias, the Town of Taos, and other water users. In late 2013, the court opened the inter se phase of the adjudication of Taos Pueblo's water rights. The Utton Center's Stell Ombudsman Program facilitated public meetings during the *inter se* phase.

History

With the impending completion of the San Juan-Chama diversion project, which would bring thousands of acre-feet of new water into the Rio Chama and the Rio Grande—two-thirds of it bound for Albuquerque and the Middle Rio Grande Conservancy District—the State sought to adjudicate water rights throughout the upper Rio Grande and its tributaries in order to administer delivery of the San Juan-Chama water. Adjudications of the Rio Pueblo de Taos and Rio Hondo stream systems were filed in federal court in 1969, titled State v. Abeyta and State v. Arellano, respectively. The cases were later consolidated and are now often referred to as simply Abeyta or Taos.

The Taos Valley's long history of non-Indian acequia-based agriculture constitutes the record of water use for most of the adjudication. The challenge for the State Engineer was to gather and compile all historical information for the adjudication's hydrographic survey of surface water rights. While this was a large undertaking, it was substantially accomplished in a few years. The Taos Pueblo's

The measure quantifies Taos Pueblo's water rights and protects the interests of local acequias, the Town of Taos, and other water users.



Taos Adjudication–Major Portions of Watersheds
By Jerold Widdison for the Utton Transboundary Resources Center.

water rights were much more difficult to quantify than the non-Indian rights. Federal law provides that, unlike New Mexico state law water rights, Indian water rights are not limited to the amount of water continuously put to use and federal law does not provide a simple formula for determining the extent of those rights (see "Indian Water Rights" section of Water Matters!).

The Pueblo first submitted its claims to the adjudications court in 1989, and they were extensive, amounting to the entire flow of the Rio Pueblo de Taos and the Rio Lucero. In that same year, the Taos Valley Acequia Association (TVAA) approached the Pueblo about negotiating, rather than litigating, the extent of the Pueblo's water rights. The TVAA represented 55 acequias and community ditch associations with approximately 7,000 individual irrigators in the Taos Valley. The negotiations grew to include the Town of Taos, the El Prado Water and Sanitation District, twelve Taos-area mutual domestic water consumers' associations (all representing another 11,000 Taos Valley residents), and the state and federal governments. By 2003, the negotiations had progressed far enough that the parties brought in a professional mediator to help them reach a settlement.

In May, 2006, an agreement was reached and signed by all parties except the United States, at a historic signing ceremony in Taos. The federal representatives opposed the proposal because, in their view, it did not require non-federal parties to pay costs proportionate to the benefits they receive. Proponents emphasize that the settlement quantifies the Pueblo's water rights, protects the water supply of the other water users in the Valley, and provides a mechanism for the Pueblo to increase its water use gradually up to the full amount of its water rights.

Groundwater Modeling

An essential tool for the negotiations was a computer model of groundwater flows in the Taos Valley developed by the Office of the State Engineer in consultation with a technical team representing each of the parties. The model incorporated the results of recent hydrogeological studies collected by various drillers, agencies, and consultants. The purpose of the model was to calculate the short- and long-term effects of pumping groundwater from existing wells and proposed wells on groundwater levels and surface flows. It will also be used administratively to evaluate future groundwater diversion proposals.

One limitation of the model is that relatively little groundwater has been pumped in the Taos Valley, so there is little drawdown data against which to check the projections of the model. The total pumping of all wells in the valley is approximately 2,500 acre-feet per year, and there is no evidence of regional lowering of groundwater levels. The settlement proposes significant increases in groundwater use, so groundwater levels will have to be carefully monitored to see if the effects of increased use match those predicted by the model, or if the model will need to be revised. The settlement specifies a process for revising the model. To that end, the parties have agreed to collect and share data on diversion amounts and groundwater levels, working toward establishment of a comprehensive monitoring program.

An essential tool for the negotiations was a computer model of groundwater flows in the Taos Valley developed by the Office of the State Engineer in consultation with a technical team representing each of the parties.

The Settlement

The settlement confirms nearly all existing uses of water, allowing all parties to continue to use the amount of water they currently use. It describes conditions and procedures under which various uses shall continue and evolve. It describes procedures for shortage-sharing and provides a framework for settling disputes, which the parties have agreed to use in lieu of making priority calls. It also settles all disputes over priorities and past over-appropriations.

The settlement calls for the use of groundwater to compensate for surface water shortages. Most groundwater users in the Taos Valley draw from a shallow aquifer. Water to supplement surface flows will come from new wells that will be drilled into a deeper aquifer, which the computer model predicts will not impair shallow wells or surface flows. As the deep aquifer is hydrologically connected to the Rio Grande, the proposal requires the parties to acquire and retire water rights on the Rio Grande to offset the impact of these deeper wells.

The Pueblo's Water Rights: Taos Pueblo's surface water consumption right is set at the amount needed to irrigate a maximum number of acres per year. However, the Pueblo has agreed to limit irrigation to the 2,322 acres currently under irrigation, approximately 40 percent of its total entitlement. The Pueblo further agrees to extend irrigation only after acquiring and retiring offsetting water rights in the Valley. Subject to some restrictions, any of the Pueblo's surface rights may be transferred to groundwater diversion.

The Pueblo may continue to use 315 acre-feet per year of groundwater presently withdrawn

The Pueblo has agreed to offer the Town of Taos the first opportunity to purchase any water that the Pueblo intends to market.

from twelve municipal and industrial wells, seventy-six domestic wells, and twelve wells for livestock watering. Additional groundwater shall be available to the Pueblo for development. The Pueblo will contract with the Interior Department for San Juan-Chama Project water to offset depletions to the Rio Grande.

The Pueblo also has water rights for the protection of Buffalo Pasture, a spring-fed wetland situated west of the Pueblo village near El Prado Water and Sanitation District (EPWSD) and the Town of Taos. Water flows have declined at this site, and the hydrological model attributes the decline to Town and EPWSD wells nearby. The Town and EPWSD have agreed to replace pumping near the Buffalo Pasture with pumping from wells further away. The settlement provides that the Pueblo may divert water from the Rio Pueblo de Taos outside the irrigation season and store it for Buffalo Pasture recharge. All the parties will collaborate in acquiring water rights on the Rio Grande to offset the effects of Buffalo Pasture recharge efforts. The settlement includes funding for construction of recharge infrastructure.

The Pueblo's water rights are not subject to forfeiture or abandonment, may be used for any purpose including maintaining stream flow, and may be temporarily marketed in or outside the Valley. The Pueblo has agreed to offer the Town of Taos the first opportunity to acquire any water that the Pueblo intends to market.

The Pueblo will enact and publish a water administration code that shall provide notice to water users in the Valley of any actions taken on the Pueblo's rights under the settlement. This code will provide a process for non-Pueblo water users to object based on impairment of water rights. The code will include due process and rights to present evidence and cross examine witnesses.

The Other Parties: The needs of the other parties will be addressed by a system of deep aquifer mitigation wells used to supplement acequia flows during irrigation season and to augment the supply of all local water systems (Pueblo, Town, EPWSD, and mutual domestic water consumer associations (MDWCAs). The wells will be located so as to serve all the streams in the Valley. This system is intended to shift some of the hydrological impact of Valley water use to the Rio Grande, via the deep aquifer. Users of the mitigation wells will have to acquire offsetting water rights on the Rio Grande mainstem.

One of the mitigation wells will supply the Arroyo Seco Arriba Aquifer Storage and Recovery Project. This project provides new water to resolve disputes over the Rio Lucero. It involves the acquisition and storage of Rio Grande water rights, either underground or on the surface, for use in the irrigation season.

The settlement describes the surface users' shares of surface flows and shortage sharing procedures. All parties agree to resolve disputes through the procedures in the settlement and to refrain from making priority calls. The TVAA agrees to cooperate with the Pueblo in the Pueblo's acquisition of surface rights in the Valley in order to expand the Pueblo's irrigation to the full extent of its settled right.

The settlement allows the twelve area MDWCAs, the Town, and EPWSD to continue to draw water from existing wells in their current amounts of usage, subject to mitigation of impacts on surface flow and relocation of production for Buffalo Pasture recharge. The total volume of groundwater withdrawn in any one area is restricted and any new wells may not be located too close to existing wells. Several longstanding disputes are resolved by proposed acquisition of water rights for eleven MDWCAs and EPWSD, funded by the State. EPWSD and the Town will contract for San Juan-Chama Project water to offset impacts of the Settlement on the Rio Grande.

Legislative History and Funding

Legislative History: In November of 2010, the Congress passed the Claims Resolution Act which, among other things, included the Taos Indian Water Rights Settlement. President Obama signed the Act into law on December 8, 2010.

Briefly, the Taos Pueblo Indian Water Rights Settlement Act

- resolves the water right claims of the Taos Pueblo and authorizes the Taos Settlement Agreement;
- allocates 2,215 acre-feet of San Juan-Chama contract water to the Pueblo and 406 acre-feet to the other settlement parties;
- provides approximately 12,000 acre-feet per year of total water rights to the Pueblo;
- provides $66 million in funding and authorizes an additional $58 million for Pueblo and non-Pueblo water development and conservation projects;
- authorizes federal funding for the planning, design, and construction of water infrastructure projects known as "Mutual-Benefit Projects," which provides that the non-reimbursable federal share of total costs will be 75 percent and the non-federal share may include in-kind contributions;
- Federal funding will be accomplished through two funds: (1) the Taos Pueblo Infrastructure and Watershed Fund for providing grants to the Pueblo for Mutual-Benefit Projects; and (2) the Taos Pueblo Water Development Fund for the Pueblo's costs for projects such as water rights acquisition, rehabilitation of existing infrastructure, and various watershed protection activities including Buffalo Pasture revitalization.
- authorizes funding for grants to non-Pueblo entities for Mutual-Benefit Projects.

Funding: In 2009, Congress authorized the "Water Settlements Fund" in the Omnibus Public Land Management Act of 2009. This fund will be managed by the Bureau of Reclamation (Reclamation) and will serve as the major federal funding vehicle for the three Indian water rights settlements in New Mexico (San Juan River/Navajo, Aamodt, and Abeyta). As enacted, the fund offers some potential for supplemental money for the Taos Settlement beginning in year 2020.

The Taos Water Rights Settlement Act includes $66 million to purchase water rights and construct a number of projects to help improve water use efficiency, groundwater management, and water quality in the Taos Valley. The Pueblo will use its funding to assist with management of its water resources as specified in the settlement. The Act authorizes an additional $58 million in future spending, subject to the appropriations process to implement the settlement fully.

The State of New Mexico will contribute approximately $20 million to implementing non-Indian benefits in the settlement. In 2005, the legislature created the Indian Water Rights Settlement Fund for the State's contribution to present and future Indian water right settlements. In 2007, the legislature appropriated $10 million for the Fund but withdrew the funds in 2009 and authorized Severance Tax Bonds in the same amount. The ISC certified the sale of $10 million in bonds to the Board of Finance in June of 2011. The legislature appropriated an additional $15 million for the fund in 2011 and an additional $10 million in 2013. Thus, the total amount of State appropriations to date is $35 million. The State's total contribution for all three settlements will be $130 million in un-indexed dollars. The total amount of money needed for the State's contribution to the Aamodt, Navajo, and Abeyta settlements will require continued annual appropriations of $15 million through 2017.

Implementation

Following the enactment of the Taos Indian Water Rights Settlement Act, the settling parties have reconciled the settlement agreement and all its attachments with the Settlement Act. All settling parties except one acequia, the Spring Ditch, signed the reconciled agreement in December of 2012.

Inter Se Phase: The adjudication court is proceeding with the inter se phase of the adjudication. The court had a procedural order and an objection form served on all known parties. Before the deadline for filing objections, the settling parties held two public informational meetings. The time for objections has closed, and the court will be scheduling further proceedings. For more information please see the Stell Ombudsman web page for the Taos Adjudication.

Construction Phase: Pursuant to Title V of the Claims Resolution Act, Reclamation's Albuquerque Area Office is working on implementing Reclamation's responsibilities under the Settlement. Reclamation has entered into San Juan-Chama Project water contracts with Taos Pueblo, the Town of Taos, and El Prado Water and Sanitation District. The contracts were signed by the Secretary of the Interior in July of 2012 at a ceremony at Taos Pueblo.

Reclamation has also been working with the local parties to assist in the planning and design of some of the Mutual-Benefit Projects. Upon the Enforcement Date, Reclamation will provide financial assistance in the form of grants on a non-reimbursable basis to eligible non-Pueblo entities to plan, permit, design, engineer, and construct the Mutual-Benefit Projects in accordance with the Settlement Agreement. The Enforcement Date is the date on which the Secretary publishes in the Federal Register giving notice that certain conditions precedent have been met. As of December of 2013, conditions that remain to be completed include: federal funds have been appropriated or provided; the New Mexico legislature has fully appropriated and deposited the state contributions; the State has enacted legislation regarding leasing of Pueblo water rights; and the court has entered the Pueblo's Partial Final Decree, and it has become final and non-appealable.

By Paul Bossert, Esq. (2009)

Latest Update by
Darcy S. Bushnell, Esq. (2013)

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Contributors

Arianne Singer, Managing Attorney,
NNM Adjudication Bureau,
N.M. Office of the State Engineer

Tanya Trujillo, Esq.

Jerold Widdison

Water Litigation in the Lower Rio Grande

"Even with its record of successful regulation and mature infrastructure and diversion operations, water conveyed through the Rio Grande continues to exhibit significant, and sometimes very contentious, issues."

Challenges and Opportunities for Water of the Rio Grande
M. Edward Rister, Allen W. Sturdivant, Ronald D. Lacewell, and Ari M. Michelsen, 2011 Southern Agricultural Economics Ass'n.
http://ageconsearch.umn.edu/bitstream/113529/2/jaae433ip6.pdf

The Rio Grande winds down from the San Juan Mountains in Colorado to the Gulf of Mexico. It flows through the three States, Colorado, New Mexico, and Texas and forms the border between the two countries, the Republic of Mexico (Mexico) and the United States of America (United States). The land is arid or semi-arid, and the water is vital to the lives, economies, and environments within and along its banks. The Rio Grande Project (Project) was authorized and built by the United States Reclamation Service in the early 20th century to collect the waters of the Rio Grande and to serve farmers in New Mexico, west Texas, and Mexico with more regularized and fairly allocated flows for irrigated agriculture.[1] Later in the late 1920s and early 1930s, Colorado, New Mexico, and Texas negotiated the 1938 Compact that allocated the surface waters among themselves.[2]

The water allocation issues are hotly contested in south-central New Mexico and the surrounding area. The Doña Ana County economy is one of the fastest growing in the state.[3] Project water allows the area's economies based on agriculture, education, commerce, and defense/aerospace to develop and thrive. The population has been growing steadily, and in 2011, rose above 213,600.[4] The area is a prime agricultural center for the state, producing pecans, peppers, onions, alfalfa, hay, cotton and other row crops.[5] The tourism industry and the water-related recreation at the Elephant Butte Reservoir and the Caballo Reservoir are important to the entire state.[6] The New Mexico State University (NMSU) is one of the largest employers of the area, draws thousands of students to live and study, and serves as the home of teaching, comprehensive research, and public service—all of which fuel the local and state economy and the local quality of life.[7]

Today, the river and those who depend on it face more administrative challenges in the face of shrinking water supplies and increased population. These challenges have given rise to two ongoing lawsuits: the Lower Rio Grande Adjudication, *New Mexico v. EBID, et al.*, 96-CV-888 (1996) (*N.M. v. EBID*) in the New Mexico Third Judicial District Court (adjudication

Today, the river and those who depend on it face more administrative challenges in the face of shrinking water supplies and increased population.

court) and the *New Mexico v. United States, et al.*, D.N.M. 11-CV-691 (2011) (*N.M. v. U.S.*) in United States District Court of New Mexico (U.S. District Court). A third possible suit was opened on January 8, 2013, when Texas filed a motion in the U.S. Supreme Court, suing New Mexico over alleged Rio Grande Compact violations. As of January 25, 2013, the U.S. Supreme Court had not agreed to hear the case.[8] This article lays out the history of the Project and issues and status of the two active cases.

The first case, *N.M. v. EBID*, is a state court adjudication being undertaken to identify and to formalize the scope and the description of valid water rights in the area between the Elephant Butte Dam and the state line with Texas. The adjudication is one of the largest in New Mexico and will determine water right claims in about 14,000 subfiles, each of which deals with one or more water rights, for about 18,000 claimants. The adjudication court and the parties are also working out the stream system issues: so-called because their resolution will affect many if not all of the claimants in the case. The court has or will determine the following stream system issues: 1) the farm delivery requirement (FDR) and the consumptive irrigation requirement (CIR) for all crops; 2) the groundwater rights of the Elephant Butte Irrigation District (EBID); 3) the status and description of domestic wells; 4) the rights and the nature of the rights of the United States in the Project; 5) the claims of those whose water rights predate those of the Project; and 6) the claims of the Nathan Boyd Estate.[9]

Adjudications are complex, expensive, and lengthy proceedings.[10] Some water right claimants worry that the case will cancel or reduce their water rights. EBID is concerned because its members' adjudicated water rights make up the district's entitlement from the Project and thereby protect its ability and responsibility to deliver water to the 90,640 acres within its boundaries.[11] The claimants hold a general suspicion about any government's interest in their rights, preferring to manage their water without governmental oversight.[12] The EBID, a political subdivision of the state, shares this suspicion of federal and/or state interest in the district's ability to manage the surface water of the Project and deliver it to their members. The adjudication of the water rights, however, is required under the 1907 New Mexico Water Code and gives the New Mexico State Engineer (State Engineer) the information necessary to meet his statutory obligations; that is, to administer the existing water uses, to preserve the aquifer, to make informed decisions about the future water development in the area, to be ready to administrate in times of shortage, and to meet New Mexico's Compact obligations.[13]

Adjudications are complex, expensive, and lengthy proceedings.

The second case, *New Mexico v. United States,* was filed on August 8, 2012 in the New Mexico federal district court. The case concerns a 2008 Texas court settlement and an alleged violation of the calculation of New Mexico credit water under the Rio Grande Compact by the Bureau of Reclamation. The settlement, titled the "Operating Agreement for the Rio Grande Project," (Operating Agreement) was negotiated among EBID, El Paso County Water Improvement District No. 1 (EP No. 1) and the Bureau of Reclamation. The Operating Agreement Settlement ended a contract dispute, first raised in 1979, that was the subject of litigation in federal district court cases filed in Texas and New Mexico. The Operating Agreement describes a written procedure for dividing Project water between the two irrigation districts.[14] New Mexico is suing these settling parties. The issues include: 1) whether the 2008 Operating Agreement settlement violated NEPA and other state and federal water statutes; and, 2) whether Reclamation unlawfully released New Mexico Compact credit water in violation of the Rio Grande Compact.

With respect to the Operating Agreement, EBID believes that it negotiated a fair allocation of the Project surface water, which takes into consideration New Mexico groundwater pumping which captures surface water in the river as the water was being delivered to Texas. EBID's negotiations resulted in the groundwater pumping development in New Mexico from 1951 to 1978 being grandfathered in and deemed not to interfere with the delivery of water to Texas. EBID also believes negotiating the Operating Agreement settlement headed off a legal battle between Texas and New Mexico in the United States Supreme Court (U.S. Supreme Court).[15]

The State of New Mexico believes that New Mexico farmers are not getting a fair share of the Project surface water and, as a result, the farmers are pumping groundwater more heavily. It is concerned the effects of groundwater pumping on both sides of the state line are not being factored correctly in the Operating Agreement. The State believes that the Mesilla Valley aquifer is being depleted from the pumping and the reduced surface water flows in the ditches is lessening historic recharge. According to the State, the Agreement's carryover provision reallocates EBID's water to Texas so that the New Mexico farmers and municipalities receive less water than they should. Finally, New Mexico challenges Reclamation's 2011 release of water to Texas that New Mexico claims as Compact credit water. New Mexico did not authorize the release and asserts that the release has and will adversely affect the accounting of New Mexico's water under Project and Compact operations, thereby undermining its sustainable water future.[16]

The question faced today is how to share a shrinking and erratic source of water in agricultural and municipal settings located across many overlapping jurisdictions. The water of the Rio Grande has been divided through several agreements. The 1906 Convention for Equitable Distribution of the Waters of the Rio Grande (1906 Convention) between the United States and the Mexico defines each country's share of these waters.[17] The Rio Grande Compact allocates the United States' portion among the States of Colorado, New Mexico, and Texas. The Rio Grande Project divides Project water between EBID and EP No. 1 and provides for the delivery of Mexico's portion identified in the 1906 Convention. The reservoirs store both Compact and Project water. The adjudication will resolve claims and describe rights to use water both in and out of the EBID. These agreements and the adjudication provide the information and rules necessary for the State, the districts, the Compact Commissioners and the Bureau of Reclamation to manage available water, to protect the resource, and to administer shortages.

The question faced today is how to share a shrinking and erratic source of water in agricultural and municipal settings located across many overlapping jurisdictions.

History of the Region

In 1536 when the Spanish, led by Alvar Núñez Cabeza de Vaca, entered the Juarez, Mexico area, they found Indians irrigating nearly 30,000 acres of maize, beans, and squash. The Spanish first established their settlements in the early 1600s, and the European population and agriculture gradually increased over the next 150 years. In 1827, following Mexican independence from Spain, El Paso was founded on the north bank of the Rio Grande. By the end of the 19th century, 50,000 people lived on both sides of the river south of the New Mexico state line.[18]

When Spanish settlement began in New Mexico in 1598, eighty-one inhabited pueblos and their fields supported as many as 100, 000 people along the Rio Grande.[19] The European settlements grew slowly until entry of the Denver & Rio Grande Railroad in the San Luis Valley of southern Colorado in the late 19th century. By the last decade of

As water uses along the Rio Grande increased, shortages also increased, affecting farmers as far south as El Paso and Juarez.

the 1800's, Colorado settlers had developed thousands of acres of farmland in the San Luis Valley with extensive irrigation works.[20]

As water uses along the Rio Grande increased, shortages also increased, affecting farmers as far south as El Paso and Juarez. In 1888, the U.S. Geological Survey reported that the river went dry before it reached these border cities and, eight years later, the International Boundary Commission reported that the annual river flows at the border had decreased by 200,000 acre-feet. Mexico had long asserted a water right based on earlier settlement and irrigation that predates the uses by European communities in the United States. Responding to reduced water supplies at the border, Mexico pressured the U.S. State Department to take action so that it would receive the water necessary for its senior right. The United States placed an embargo on the development of water supplies on public lands in New Mexico and Colorado, to protect existing deliveries in the south.[21]

Possible storage projects had long been discussed among interested citizens, governments, and businesses in the area. Two projects were given serious consideration, one in each state. In 1893, Dr. Nathan Boyd of New Mexico formed a private enterprise, the Rio Grande Dam & Irrigation Company, to build a dam and reservoir to supply irrigation water to farm lands located in New Mexico's Mesilla Valley. He planned to store spring flood flows and release them throughout the drier summer.[22] The proposed works were not intended to serve Mexico or west Texas, and would have likely made international tensions worse. In 1895, the State Department approved the project and construction began. Shortly thereafter, the State Department changed its position on the project and otherwise stymied the project by bringing lawsuits and blocking construction permits, eventually causing the project to fail. Dr. Boyd's heirs continue to sue the federal government over the failed project and the government's role in that failure into the 21st century.[23]

About the same time, El Paso Valley residents developed a plan for an international dam to serve farmers in west Texas and Mexico. They opposed Dr. Boyd's plan because they feared it would capture the flood flows they needed for their reservoir. The New Mexico farmers resisted the El Paso Valley plan because they believed the proposed reservoir would flood a large area in southern New Mexico. As upstream diversions continued to decrease local water supplies, the pressure to find a resolution to the problems of water allocation between the States and Mexico grew more acute.[24]

Then in 1904, the 12th International Irrigation Congress, made up of engineers, government officials, and the U.S. Reclamation Service (Reclamation Service) personnel, endorsed the Service's plan addressing the problem. The plan envisioned the Reclamation Service constructing the Rio Grande Project, a federal reservoir and distribution system to provide irrigation water to lands in New Mexico and Texas. The plan also contemplated delivering 60,000 acre-feet to Mexico, provided a treaty with that country could be negotiated. That treaty, the 1906 Convention, was ratified in 1906.[25]

Rio Grande Project Facilities

When the Reclamation Service was created in 1902, one of its first priorities was to solve the New Mexico, Texas, and Mexico water problem. In 1905, Congress extended the Reclamation Act to El Paso Valley, thus allowing Texas residents to received Project water; authorized the construction of the Rio Grande Project, including Elephant Butte Dam; and directed that the apportionment of the Project water would be based on

irrigation surveys conducted by the Reclamation Service. Subsequently, the Elephant Butte Water Users' Association and El Paso Valley Water User's Association were formed. Later, the members of these associations reorganized into EBID in 1918 and EP No. 1 in 1917. These organizations were formed to work with the Reclamation Service on the operations and to pay for the costs of the construction, operation, and maintenance of their respective parts of the Project. Each district's payment was based on its irrigated acreage and the water apportionment to it.[26] In 1923, Congress changed the name of the Reclamation Service to the U.S. Bureau of Reclamation.[27]

The Project works include the reservoirs, the dams, the delivery system, and the drains. The geographic area involved runs from Elephant Butte Reservoir in New Mexico, past the state line to just above Fort Quitman in far west Texas. In 1906, the United States submitted Filing No. 8 with the New Mexico Territorial Engineer for an appropriation of 730,000 acre-feet per year and in 1908, submitted a second filing for all unappropriated water in the Rio Grande for the Project. The Bureau of Reclamation began building the Elephant Butte dam in 1908, completing it in 1916. When completed, Elephant Butte Reservoir had a capacity of 2,638,000 acre-feet. As irrigation increased in the New Mexico Mesilla Valley, seepage problems and a rising water table made construction of a drainage system imperative to keep the fields viable. Between 1917 and 1925, 457 miles of drains were constructed to resolve the problem.[28]

In 1938, Reclamation finished the Caballo Reservoir. The reservoir is located twenty-two miles south of Elephant Butte Reservoir and has a capacity of 343,990 acre-feet. Caballo is used to control flood flows, to store water released from the Butte in the winter for hydropower generation, and to store water Elephant Butte Reservoir can no longer accommodate because of silt buildup.[29]

Reclamation also completed American Diversion Dam near El Paso in 1938. This dam is used to divert the last of EP No. 1's project water from the river. Water for Mexico is diverted by the International Dam, which was built in 1918. This dam diverts Rio Grande water into the Acequia Madre in El Paso to be delivered to Mexico as required by the 1906 Convention. The American Dam and the 1918 International Dam are located just outside of the Project and operated by the International Boundary and Water Commission.

The Project works include the reservoirs, the dams, the delivery system, and the drains. The geographic area involved runs from Elephant Butte Reservoir in New Mexico, past the state line to just above Fort Quitman in far west Texas.

Today, the facilities of the Rio Grande Project include two storage dams, six diversion dams, 141 miles of canals, 462 miles of lateral ditches, 457 miles of drains and a power plant. The power plant was built at the Elephant Butte dam in 1940 and was operated by the Project until it was sold to a private company in 1977. The Project's irrigation system regularized the water delivery that has been vital to the economic development and growth of the farming industry and municipalities within and around the Project.[30]

Water Availability

The amount of water stored in the Elephant Butte Reservoir has varied considerably over time. Wet years prevailed during construction, and by 1915, the Butte had filled sufficiently to begin storage and delivery operations. Reclamation began tracking water measurements within the Project in 1915 and continues today. Using the collected information, it is able to chart historic averages. For a long time, the reservoir levels remained above average. Then in 1936–1937 and again in 1940, they dropped to below average. In December 1940, the Butte was at a record low, but by June of 1941, it had refilled completely.

These swings continued throughout the 1940s and 1970s period, during which water levels rose to historic averages or above only five times. In the 1950s drought, the water supply in the Butte dropped to as low as 10,000 - 20,000 acre-feet. Through strict conservation, the planting of drought-tolerant crops, and the drilling of more than 700 individual wells, the farmers were able to maintain crop production. Full-supply conditions returned and, between 1978 and 2002, the farmers enjoyed full allocations each year. The water table, which dropped in periods of heavy groundwater pumping, returned to normal levels.[31]

The administration of the Project changed after the districts paid off their construction debts to the United States in 1979-1980, and it is now operated as two units.

By 2003, shortage conditions once again caused the Elephant Butte Reservoir to drop below full-supply levels. The Project delivered reduced amounts of surface water to the districts, and the farmers turned again to groundwater pumping to make up the difference. As happened historically, the increased groundwater pumping lowered the water table, but this time when full-supply conditions returned, the water table did not recover. There are different views on why this happened: perhaps the failure to recover was caused by the shortages, groundwater pumping, other mechanisms, or some combination of some or all of them.[32]

Administration

The surface water and the groundwater in the Rio Grande Project have a close geohydrological connection and their use requires careful conjunctive management. The Project surface water administration is a cooperative endeavor among the Bureau of Reclamation, EBID, and EP No. 1. From the time the Reclamation Service made the first deliveries to the farms in 1915 until 1978, the agency administered the stored surface and the drain water throughout the Project as one unit without regard to the state line. It released water from the reservoirs and delivered it to the farm headgates in the states and to the Acequia Madre for Mexico.[33]

The administration of the Project changed after the districts paid off their construction debts to the United States in 1979-1980, and it is now operated as two units. The Bureau of Reclamation retained the ownership and the control of the Elephant Butte and the Caballo dams, the two reservoirs, and the diversion dams. Under the 2008 Operating Agreement settlement, Reclamation notifies each district of its allocation of project supply. Each district informs its membership of the allocation and diverts its share at the diversion dams. The districts then deliver water to the members' farm headgates. The two districts request releases of water from Reclamation. This change gives the districts more control over the management and the distribution of their allocated water.[34]

The New Mexico State Engineer has administrative authority over the groundwater in the lower Rio Grande Basin. This authority arose by operation of state law when the Engineer "declared"[35] the several groundwater basins beneath the lower Rio Grande stream system between 1961 and 1982.[36] In December 2004, the State Engineer created the Lower Rio Grande Water Master District to provide for the "economical and satisfactory apportionment" and administration of groundwater in the lower Rio Grande stream system. The water master district includes the Hot Springs, Las Animas Creek, and Lower Rio Grande administrative groundwater basins. The State Engineer also embarked on a program to have all wells in the district metered except for those that serve only one household or livestock. As of the spring of 2010, about 2,500 wells had been metered.[37]

As a separate but related matter, the Compact Commission administers the Compact waters to ensure that each State

receives its equitable share of the Rio Grande waters. EBID management refers to the district as being "in Compact Texas for purposes of the Rio Grande Compact and surface water, but in geographic New Mexico for groundwater."[38]

Allocation

In 1905, Congress authorized the investigation and the construction of the Rio Grande Project and studies of irrigable lands located within it. Following the studies, the Reclamation Service determined that the appropriate apportionment would consist of sufficient water for 88,000 irrigated acres (later adjusted in 1937 to 90,640 irrigated acres) in southern New Mexico and 67,000 irrigated acres (later adjusted to 69,010 irrigated acres) in western Texas. Based on the ratio of irrigated acres, southern New Mexico would receive 57 percent and western Texas would receive 43 percent of the available Project water. The 1906 Convention allocated 60,000 acre-feet a year of Rio Grande flows to Mexico. This amount can be reduced in times of "extraordinary drought."[39]

The Elephant Butte Reservoir stores both Compact and Project water. The Project water is administered by the districts, and the Bureau of Reclamation and the Compact Commission have authority over the Compact water.[40] EBID is in Compact Texas for purposes of the Rio Grande Compact and surface water but in geographic New Mexico for groundwater.

The 1938 Compact: Eventually however, it became apparent that a water apportioning agreement between Colorado, New Mexico, and Texas was needed for the Rio Grande. The 1920s expansion of agriculture in the Middle Rio Grande and Colorado's San Luis Valley threatened to deprive the Project of the flows necessary to make its deliveries. Between 1895 and 1925, the United States had placed an embargo on the diversion of water from the Rio Grande to federal lands in Colorado and New Mexico to protect the river's water supply. By 1928, the States, through their appointed commissioners, had opened talks with the goal of negotiating a compact to allocate Rio Grande surface water between them. The commissioners first put in place a temporary agreement in 1929 that maintained the *status quo* and thereby avoided U.S. Supreme Court litigation while negotiations for a permanent compact were underway. Then the Great Depression tabled all activity until the end of 1933.[41]

Work on the Compact restarted in 1933 and finished in 1938 when the Compact was ratified. Key provisions include: 1) the creation of a Commission to oversee the operations of the Compact; 2) two gauging stations to monitor deliveries by Colorado for New Mexico and deliveries by New Mexico at Elephant Butte Reservoir for Texas; 3) development of a system of debits and credits to account for variations; and 4) a release for the Project of 790,000 acre-feet for accounting purposes. Believing that the Project operations divided the water for use with the Project, the commissioners did not develop a delivery schedule for the area between the Butte and the Texas state line.[42]

In a year when New Mexico's delivery to the Elephant Butte Reservoir exceeds that amount required by the Compact, the State builds up a credit that can be saved or relinquished to Texas. If Texas accepts that water, New Mexico can store more water in reservoirs upstream of the Butte in future years. This provision means that in dry years New Mexico can more easily meet its obligations to Texas and keep some water flowing to the New Mexico farmers.[43]

The Rio Grande Project: The Rio Grande Compact left Reclamation in charge of the allocation and delivery of "usable water" from the Butte to the districts and Mexico

Eventually however, it became apparent that a water apportioning agreement between Colorado, New Mexico, and Texas was needed for the Rio Grande.

Usable Water consists of all water in reservoir storage with the exception of the Rio Grande Compact credit waters belonging to Colorado or New Mexico, and water imported into the Rio Grande basin through the San Juan-Chama Project.

through the operations of the Project. Usable Water consists of all water in reservoir storage with the exception of the Rio Grande Compact credit waters belonging to Colorado or New Mexico, and water imported into the Rio Grande basin through the San Juan-Chama Project. The runoff within the Project and the water returned to the river through the drains are also important to the Project's supply.[44]

Until 1951, the Bureau of Reclamation delivered an equal amount of water per acre to the farmers, as it was ordered. If it were a water-short year, Reclamation would announce the water allotment per acre for that year. As the 1951–1975 drought cycle progressed, the surface water supply diminished and Reclamation needed to develop a method of determining the deliveries to the farmers and Mexico that accommodated the shortage conditions. A part of the analysis included determining how much of the water amounted to a full delivery to the lands in the United States. In the early 1950s, Reclamation analyzed data from the period 1946 to 1950, and determined that a full allocation for each acre was 3.0412 acre-feet. The allocation accounted for the system's losses and accretions.[45]

In 1979–1980, the districts paid off their construction debt to the United States and took over the operation and the maintenance of the irrigation and the drainage system, giving them more control over the administration of the surface water. At that time, each district entered into a contract with Reclamation. These contracts called for Reclamation to develop an allocation and operating plan that was later the subject of the 2008 Operating Agreement. The years of full supply and a lawsuit with the City of El Paso (over the New Mexico State Engineer's denial of 266 applications to drill wells in the Mesilla Bolson for water use in Texas) delayed action on the allocation agreement.[46]

From the mid-1980s until 2008, Reclamation operated the Project using allocation procedures that had not been approved by the districts. It allocated water using linear regression curves for the historic delivery (D1) and historic diversion (D2) of Project water. These curves are based on an analysis of the release, the delivery ratios, and efficiencies measured during the 1951–1978 period. When Reclamation proposed using the D1 and D2 curves as the basis of an operating agreement, the districts did not agree.[47]

During the full-supply years, Reclamation allocated 495,000 acre-feet to EBID, and 377,000 acre-feet to EP No. 1, thus maintaining the historic 57 percent–43 percent split. When Reclamation made these releases, the combination of the water released, return flows, tributary water, and drain water resulted in a total delivery throughout the Project, on average, of about 930,000 acre-feet.[48] If a district did not call for all its allotted water in a particular year, the remainder would be reclassified into the general pool in the reservoirs and reallocated between the districts the following year. This regime remained in place until 2008.[49]

The pressure to find a solution to the operating procedures mounted when in 1997 the United States filed a quiet title action in the U.S. District Court in New Mexico to determine the federal rights in the Project. EP No. 1 filed a counterclaim alleging an inequitable allocation of Project water since Reclamation failed to take into consideration the New Mexico groundwater pumping.[50] The 1997 case was sent to mediation, and the parties attempted to negotiate an operating agreement. The mediation failed. The U.S. District Court dismissed the United States' quiet title action and EP No. 1's counterclaim in 2001, deferring to the

state stream adjudication to determine the rights of the United States. However, it retained jurisdiction in the case if any of the parties believe their rights have not been adequately addressed in the adjudication.[51]

The 2008 Operating Agreement: When water-short conditions reappeared in 2003, the districts and Reclamation intensified their efforts to reach an agreement for managing the Project. For the first time, Reclamation had to administer water during a drought in a two-unit system. Adding to the problems, the operations data showed a pronounced deviation from the historic D2 curve. Reclamation tried different approaches to an equitable solution, but in 2007, EBID filed a lawsuit in federal district court in New Mexico, and shortly thereafter, EP No. 1 filed a lawsuit in a federal district court in Texas concerning the districts' objections to procedures that Reclamation had tried to implement.[52] The Texas rules of procedure mandated immediate mediation. EBID was aware that Texas had hired a well-known water right legal specialist to prepare a petition to the U.S. Supreme Court alleging a breach of the Rio Grande Compact and requesting an equitable apportionment of all waters between Elephant Butte Reservoir and Ft. Quitman, Texas. EBID came to the table because these cases tend to be resolved in favor of the downstream state.[53] The districts and Reclamation crafted and signed an operating agreement on February 14, 2008, which will remain in effect until December 31, 2050.[54]

The 2008 Operating Agreement describes how the Bureau of Reclamation will handle the accounting of usable water in the Reservoirs, as well as the releases and the distribution to the districts and to Mexico. The agreement bases the allocation to EP No. 1 and Mexico on the historic river performance reflected in the D1 and the D2 curves. EBID's water allocation is based on a new "D3" method, in which the district is allocated whatever deliverable water is left after Mexico's and EP No. 1's allocations are made. The D3 allocation method is intended to protect EP No. 1 from the effects of New Mexico groundwater pumping. EBID supported this allocation method to dissuade EP No. 1 from arguing for a groundwater depletions allowance based on groundwater pumping as of 1938, the date of the Compact. Instead, EBID negotiated the pumping baseline at the 1951–1978 shortage condition that grandfathered in thousands of acre-feet of New Mexico groundwater pumping. The Operating Agreement provides that any pumping depletions that exceed the 19511978 levels are to be offset by reducing EBID's Project surface water allocation.[55]

The Agreement also includes for the first time, carryover accounts for EBID and EP No. 1. Each district may carryover 60 percent of its full-supply allocation from one year to the next. Any carryover in excess of that amount is credited to the other district. The Agreement also provides for a detailed Operations Manual, which was completed and released in 2010. Non-operational benefits to the districts include the dismissal of lawsuits they had filed, a reduced threat of Texas filing the U.S. Supreme Court case, an internal review of the operations of the El Paso Field Office, codification of allocation and operational procedures, and a provision that allows procedures to be changed through a consensus process on an annual basis.[56] Most recently, changes have been made regarding calculations of river efficiency due to drought conditions and a credit to EBID for the City of El Paso Canutillo well field pumping impacts on EBID.[57]

The Elephant Butte Reservoir stores both Compact and Project water. The Project water is administered by the districts and Reclamation and the Compact Commission has authority over the Compact water.[58] EBID is in Compact Texas for purposes of the Rio Grande Compact and surface water

When water-short conditions reappeared in 2003, the districts and Reclamation intensified their efforts to reach an agreement for managing the Project.

In 1986, EBID filed a complaint to initiate a water rights adjudication in the New Mexico Third Judicial District Court in Doña Ana County.

but in geographic New Mexico for groundwater.

Adjudication

In 1980, the City of El Paso's filed applications with the New Mexico State Engineer to develop wells in the Mesilla Bolson groundwater basin. EBID protested the applications on the basis that the proposed uses would threaten senior water rights in New Mexico. In 1986, EBID filed a complaint to initiate a water rights adjudication in the New Mexico Third Judicial District Court in Doña Ana County. The district took these actions to protect New Mexico water rights by formally establishing their amounts and priorities, thereby providing a basis for showing the local demand upon the area's groundwater resources and for informed decision-making in the new-use application process and to stop the State Engineer from issuing any more permits until the adjudication was completed.[59]

Between 1986 and 1993, the adjudication case shifted between state and federal courts as the parties litigated issues about the proper court; whether the State Engineer was a proper party; and, whether under NMSA 1978 § 72-4-17 the stretch of the Rio Grande between the Elephant Butte Dam and the state line constituted a stream system for purposes of state law and the McCarran Amendment. The McCarran Amendment is a federal act that provides a waiver of United States sovereign immunity so that it can be joined in "adjudication of rights to the use of water of a stream system or other source" in state court.[60] The United States resisted being joined in the Lower Rio Grande adjudication, arguing that the stretch of the river involved in the case did not constitute a "stream system" for McCarran purposes. Without the United States, the adjudication was not feasible because of its interests in the Project. The New Mexico Court of Appeals held that the case could be heard in Doña Ana County, the State Engineer could be a party, and because of the way water is allocated between States in the 1938 Rio Grande Compact, the stretch of the Rio Grande from Elephant Butte to the New Mexico-Texas state line was properly considered a stream system for the purposes of state and federal law.[61]

Subfile Determination: In December of 1997, the State re-filed the adjudication suit in the state court in Las Cruces.[62] Since that time, the work of the court and parties has been divided into two general sections: 1) the individual water claims known as subfiles and 2) the stream system issues. Subfile orders resolve issues between the State and the water right claimant but are still subject to challenge from other water right holders in a subsequent part of the case known as *inter se*.[63]

As of October 1, 2012, the State has identified slightly fewer than 14,000 subfiles and over 18,000 claimants. The Office of the State Engineer (OSE) is responsible for the technical information about the claims and publishing it in a hydrographic survey.[64] The State's attorneys attached to the OSE join the claimants to the case, work the subfiles by preparing and sending out offers of judgment, informally negotiating with claimants who object to the offers, and, if necessary, participating in formal mediations and trials. Very few of the subfiles progress to mediation or trial. As of November 2012, the State has made legal service upon approximately half of the claimants in the case and around 5,500 subfiles have been fully adjudicated.[65]

Stream System Issues: In October 2007, the adjudication court entered an order describing the procedures for determining stream system issues and requiring the State to join all remaining claimants so that they would be bound by any future decisions.[66] Stream system issues affect all or a large

number of parties in the adjudication. Joinder was accomplished in a year and the parties proceeded to identify four stream system issues and one expedited *inter se* issue. The court and the parties have pursued these issues while the State continues, on a limited basis and as staffing permits, to address the adjudication of subfiles.[67]

The first stream system issue (commonly referred to as "issue 101") involved defining the consumptive irrigation requirements (CIR) and farm delivery requirements (FDR) for all crops. CIR is "the quantity of irrigation water exclusive of precipitation, stored soil moisture, or ground water that is required consumptively for crop production." [68] FDR is "the quantity of water, exclusive of effective rainfall, that is delivered to the farm headgate or is diverted from a source of water that originates on the farm itself, such as a well or spring, to satisfy the consumptive irrigation requirements of crops grown on a farm in one calendar year."[69] Determination of these factors occurs in all water right adjudications and is necessary to settle one of the statutory elements of an irrigation water right: the amount of water which can be applied to each irrigated acre. These requirements are usually based an averaged amount of water required to grow the types of crops, soil conditions, and elevation found in the area.[70]

This issue arose out of a settlement between the New Mexico Pecan Growers (NMPG) and numerous other parties regarding the irrigation requirements of mature pecan orchards and the conditions applying to the requirements. In 2008, the adjudication court entered an order approving the settlement. In 2009, the court entered an amended order that expanded the issue to include irrigation requirements for all crops in the lower Rio Grande basin. The main parties participating in consideration of this stream system issue included the state, EBID, the New Mexico Pecan Growers, and the Southern Rio Grande Diversified Crop Farmers Association who represent farmers growing row crops such as chiles and onions.[71]

Pecans are an important crop in the lower Rio Grande area and they require more water than most other crops to thrive. In 2006 acting under the general Active Water Resource Management Regulations (AWRM), the State Engineer issued proposed Lower Rio Grande AWRM regulations, which recommended a FDR of 4.0 acre-feet per acre. The pecan growers argued for a higher FDR, based on New Mexico State University studies showing that pecans require 4.5 to 7 acre-feet annually, depending on soil type. The Diversified Crop Growers wanted equal treatment, while the State recommended determining one FDR for pecans and a second for all other crops.[72]

The challenge was to find an equitable and crop-sufficient solution to the amount of water per acre that would not run afoul of the Rio Grande Compact and the Rio Grande Project operations. In June of 2011, the main parties advised the adjudication court that a settlement had been reached. On August 22, 2011, the adjudication court entered its Final Judgment setting forth FDR and CIR amounts for all crops in the New Mexico Lower Rio Grande Basin as well as the CIR amounts for irrigation rights transfers to irrigation or non-irrigation purposes. The Judgment also provided time for the parties to "prove up" an entitlement to an additional acre-foot for the FDR, based on historic beneficial use. The State's evaluation of the evidence submitted by claimants is under way.[73] Since the judgment was not appealed, the water right element concerning the amount of water to be applied to each irrigated acre has been established.[74]

The second stream system issue (commonly referred to as "issue 102") addressed EBID's claim to underground waters for 90,640

The challenge was to find an equitable and crop-sufficient solution to the amount of water per acre that would not run afoul of the Rio Grande Compact and the Rio Grande Project operations.

acres of its members' lands. Following successful negotiations between the State and EBID, the court entered a Stipulated Subfile Order on October 4, 2010, adjudicating EBID's groundwater rights associated with five deep wells drilled in 1973. EBID's total entitlement from the five wells is capped at 9,500 acre-feet. This water is intended to supplement members' surface rights in times of shortage.[75]

The third stream system issue (commonly referred to as "issue 103") is to determine the priority, transferability, and beneficial use elements of domestic well water rights. The court has deferred the scheduling in this matter.[76]

The fourth stream system issue (commonly referred to as "issue 104") is to determine the rights and interest of the United States in the Rio Grande Project. The United States' claims include rights: 1) to enough water to meet the needs of the Project; 2) to divert, store, and impound surface waters of the Rio Grande in an amount of 2,638,860 acre-feet for Elephant Butte Reservoir and 242,990 acre-feet for Caballo Reservoir; 3) to continuously fill and refill the reservoirs; 4) to release sufficient water from storage to meet the irrigation demands of the Project and Mexico; and 5) to the delivery of water at certain points within the Project system including return flows, surface water, or groundwater.[77]

For case management purposes, the adjudication court has segmented the United States' claim. When one segment is completed, the court and the parties decide what should be addressed next. In the first sub-issue, the United States claimed that as a matter of law, it is entitled to water from both surface and related groundwater for the Project. In 2012, the adjudication court denied that claim, holding that the United States has only established a surface right under New Mexico state law and stating that the issue of the status and quantity of return flows in the Project should be determined administratively.[78] Had the United States' claim prevailed, the federal government could have exercised more control over the water and conjunctive management of the water in the lower Rio Grande, to the detriment of the authority of the State Engineer.[79] In October of 2012, the adjudication court set the schedule for litigating the issues of amounts of water and priority dates for the United States' Project right.[80]

The Boyd Estate: On February 1, 2011, the adjudication court initiated an expedited *inter se* proceeding on the claims of the Estate of Nathan Boyd. The Boyd Estate made the following claims:

1. A right to divert 506,720 acre-feet of biannual recharge, with a priority date of 1894. This right was intended to serve farmers and other water users in the Rincon, the Hatch, the Mesilla, and El Paso Valley, and to provide for hydroelectricity generation and recreation.
2. Rights to the Elephant Butte and the Caballo Dams, which the Boyd Estate claims derived from the Secretary of the Interior's 1895 approval of its proposed project.
3. A right to deliver irrigation water to farmers with pre-existing water rights on the Doña Ana, the Mesilla, and the Las Cruces Community Ditches through the Fort Seldon/ Leasburg canal and diversion.
4. A right to deliver irrigation water to lands that were not yet served through the Fort Seldon /Leasburg canal and diversion, with a priority of 1987.
5. A right to deliver irrigation water to the farmers in the Rincon and the Hatch valleys in the Doña Ana and the Sierra counties through the West Side or the Percha diversion and canal, with a priority date of 1894.
6. A right to deliver irrigation water to the farmers in the Lower Mesilla Valley via the Santo Thomas Diversion, or the West Side Canal.[81]

In February 2012, the adjudication court entered an order granting several motions to dismiss these claims holding that it is bound

by prior decisions in other courts on these matters. Thus, "the Boyd Estate does not state a cognizable claim to water rights in this adjudication."[82] In April 2012, the Nathan Boyd Estate filed its notice of appeal with the New Mexico Court of Appeals.[83] As of November 9, 2012, no briefing or oral arguments have been scheduled.[84] Dr. Nathan Boyd's family has pursued its claims through many courts since the late 1890s. If the Boyd Estate were to win on those claims after many years of litigation, the ownership, operations, and management of the Project would be profoundly affected, and significant monetary damages may be owed.

Adjudication Progress: Significant progress has and is being made in the water rights adjudication. For example, in November of 2009, Reclamation and the State agreed to adjudicate the amount of acreage for individual claims according to EBID's assessment acreage records. This agreement resolved large numbers of objections by irrigators to the State's offers of judgment that proposed using actual irrigated acreage. The water rights of large users are being determined. Subfile orders have been entered for the majority of the City of Las Cruces' water rights and the remaining rights are being negotiated. Subfile orders have been entered for the majority of NMSU's water rights and the remaining rights are being negotiated. *Inter se* challenges from other water right holders, if any, remain to be heard in both instances. The City of El Paso's irrigation water rights in New Mexico are being negotiated.[85] Successful negotiations result in locally crafted solutions to issues that could have taken years to litigate and give the local players much more control over the resulting solutions.

Operating Agreements and Disagreements

Shortly after the announcement of the Operation Agreement in 2008, the State of New Mexico began to have concerns that revolved around EBID's Project allocation in full-supply years and related groundwater depletions. Under the Agreement, EBID's Project surface water allotment is calculated from the deliverable water remaining after the allotments for EP No. 1 and Mexico are identified. This method is intended to account for the groundwater depletions to the system caused by pumping in New Mexico. According to the State, the EBID farmers also unfairly absorb the losses from Texas pumping.[86] The district responded that the negotiated solution gave it a depletions baseline derived from the 1951–1978 condition rather than the 1938 condition and avoided U.S. Supreme Court litigation. EBID noted that, in addition to Texas depletions, the district is also carrying depletions by New Mexico pumpers located outside the district.[87]

Shortly after the announcement of the Operation Agreement in 2008, the State of New Mexico began to have concerns that revolved around EBID's Project allocation in full-supply years and related groundwater depletions.

Then, New Mexico and Texas could not reach an agreement about evaporation losses in Elephant Butte Reservoir that affected the calculation of a relinquishment of New Mexico's Compact credit water. Over New Mexico's objections, Reclamation made the evaporation calculation and subsequently released about 33,000 acre-feet of the Compact credit water to the Project.[88]

On August 8, 2011, the New Mexico Attorney General sued the Department of Interior and the U.S. Bureau of Reclamation in the U.S. District Court of New Mexico, in *New Mexico v. United States,* seeking to have the 2008 Operating Agreement invalidated and a permanent injunction issued preventing its use.[89] The districts have been joined and the City of Las Cruces has intervened on the side of the State of New Mexico to request the court to compel Reclamation to conduct the necessary studies to ensure that the area has sustainable water sources for the long term.[90] The federal court denied, without prejudice, the Middle

Rio Grande Conservancy District's (Conservancy) motion to intervene on the credit water issue. The Conservancy filed a motion to reconsider and awaits the court's decision.[91]

New Mexico alleges that the 2008 Operating Agreement constitutes a major change to the operations of the Project resulting in a reallocation of more than 150,000 acre-feet of water each year from New Mexico to Texas and Mexico, in violation of the Rio Grande Compact, the Reclamation Act, and the state water law; that Reclamation did not have the authority to unilaterally release or reduce the State's Compact credit water; and Reclamation did not fully address the environmental impacts during the NEPA process.

EBID has responded that it employs a strategy of using surface water when it is available and reserving groundwater for times when surface water is not available. Since 2008, the district has received about 100,000 acre-feet from EP No. 1's excess carryover water.

The State asserts that Reclamation now reallocates 170,000 acre-feet of EBID surface water supplies to EP No. 1 in full-supply years and that EBID's percentage of Project water has changed from the historic 57 percent to about 38 percent. It claims that EBID members now receive one third less water than they received historically. The State calculates the value of that reallocated water to be in the millions to billions of dollars.[92]

EBID responds that historically, Reclamation's allocation methods did not take into account groundwater pumping, and the 2008 Operating Agreement's allocation methods do. The district asserts that in spite of the State's claims of monetary losses, agricultural economic production has increased since the implementation of the Agreement. In addition, it claims that the apparent recent disparity in allotments is the result of EP No. 1 calling for its carryover water from the previous year. The State, according to EBID, is counting the same water multiple times. In addition, EP No. 1's allotment includes return flows from the City of El Paso treatment plants. Carryover water is allowed for the first time under the Agreement. In the past, that water would be put back into the general pool and reallocated to both districts the following year. This new operational rule is important to EP No. 1 because the district cannot turn to groundwater sources as EBID does in dry times. The carryover water in Elephant Butte Reservoir answers that need.[93]

The State claims that since EBID receives less surface water under the Operating Agreement, its farmers will increase their groundwater pumping to get 4.5 acre-feet per acre to their crops even in a full-supply year. Since less water is running through the ditches, less recharge is entering the aquifer. Under these conditions, the aquifer is taking a double hit: more water pumped out and less water percolates in. During a shortage condition, the effects are magnified. The State believes that EBID's current low allotments are produced by the Operating Agreement and exacerbated by the shortage condition. [94]

EBID has responded that it employs a strategy of using surface water when it is available and reserving groundwater for times when surface water is not available. Since 2008, the district has received about 100,000 acre-feet from EP No. 1's excess carryover water. This carryover has eased New Mexico pumping in the district. EBID believes that its current low allotments are a result primarily of the drought/shortage conditions.[95] EBID believes that the Operating Agreement benefits both districts. It gives the water management flexibility EBID needs and provides EP No. 1 with an incentive to conserve water that it needs. The district reports that the Agreement is a "living document," and it has and will be adjusted annually as problems arise. [96]

New Mexico alleges that Reclamation has reallocated the State's Compact credit water and that only the Rio Grande Compact Commission has the authority to take such an action. As a result, Reclamation's decision to release New Mexico's Compact credit water deprives the Middle Rio Grande users of the right to store water upstream, pursuant to storage limitations in the Compact.[97] Formal relinquishment of the water to Texas would have preserved that right. As a result of the release of the credit water, the Compact Commission and its advisors are unable to agree to the 2011 credit water accounting.[98]

New Mexico also alleges that the Bureau of Reclamation did not fully address the environmental impacts in the NEPA process and that an EIS analysis that looks at a five year horizon is inadequate in this case.[99]

In November 2013, the U.S. District Court heard argument on motions to dismiss all or part of the case before it. No decisions have been issued as yet. One of the motions requested a mediator, but the State has withdrawn that motion. All the parties were awaiting a decision on what is left to litigate when Texas elevated the controversy over the allocations of Rio Grande water between Texas and New Mexico to the U.S. Supreme Court. The Court has taken no action on Texas's motion to file its Complaint.

Conclusion

The debate in the case is about the shape of New Mexico's water future in the lower Rio Grande, who will manage the water, and what is the best way to do it. The issues around how to share water, a limited resource, are made more critical in the face of climate change and/or prolonged drought and growing populations.[100] The Compact allocates surface water between States but is silent on groundwater. The 2008 Operating Agreement is not acceptable to the State of New Mexico. It is, however, acceptable to Texas because it addresses the issue of groundwater.

Other questions have been asked about how New Mexico, the districts, and the Bureau of Reclamation will conjunctively manage the surface and groundwater over which they have authority; how will their decisions affect other residents in the three-state area and Mexico; and, do these parties with a long history of litigation need to continue along that course. The Project's irrigation season lasted only a few weeks this year, when in full-supply years it lasts for the full irrigation season. Farmers below the Butte have been increasing their groundwater pumping at a rapid rate. The aquifer has dropped since 2003 and did not show the expected rates of recovery in the following full-supply years.

Under these drought and shortage conditions, can the aquifer and the rest of the Rio Grande stream system be maintained at levels necessary to support agriculture, municipal, and other uses that make up the economy and lifestyles of south central New Mexico? How long will those uses be sustainable and what will happen in times of greater shortage? These kinds of complex questions are best resolved in negotiation rather than in litigation, and the opportunity is before us.[101]

By Darcy S. Bushnell, Esq. (2012)

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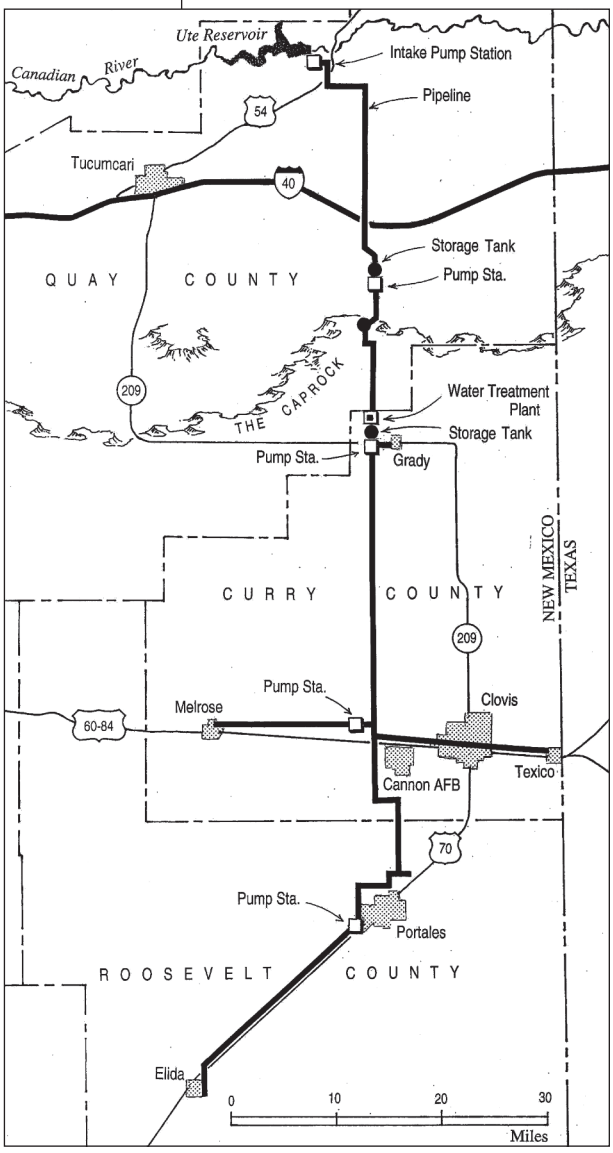
Eastern New Mexico Rural Water System
(Ute Pipeline Project)

> "Anticipating the potential water needs in eastern New Mexico and in the interest of maximizing New Mexico's use of water from the Canadian River stream system, the N.M. Interstate Stream Commission completed construction of Ute Dam and Reservoir in 1962 at a present-day cost of over $125 million."
>
> N. M. State Engineer
> John D'Antonio Jr., (2003–2011)

The Ute Pipeline Project (Project), officially known as the Eastern New Mexico Rural Water System (ENMRWS), is a 151-mile-long pipeline project to provide a sustainable municipal and industrial water supply for several eastern New Mexico communities and a military base. Water will be pumped from Ute Reservoir to the cities and towns of Clovis, Portales, Melrose, Texico, Grady, and Elida, as well as to Cannon Air Force Base and Curry and Roosevelt counties (see map). The entities involved in the Project have a combined population of about 73,000.

Status Bar 2014• Eastern NM Water Utility Authority

- Legislative Finance Committee completed the program evaluation of the Water Trust Board, and found that the Board was correctly funding large regional projects such as the ENMWUA and the Navajo Gallup projects.
- Huge rains in September 2013 added 28,000 acre-feet to the Ute reservoir.
- An evaluation of alternatives by a geohydrologist for Portales found that the Ute Pipeline remains the best option but that ongoing conservation efforts are necessary until the pipeline is completed. Portales residents have reduced their consumption to 150 gallons per capita per day.
- Efforts have been undertaken to improve the watershed. A completed draft water quality plan has been submitted to NMED.
- The federal appeals court in Denver denied the city of Logan's request for an injunction pending a decision. The court has heard the city's challenged to the Project, and the parties are waiting for its decision.
- The Project received $2.1M from the Bureau of Reclamation
- The Water Trust Board awarded 3.2M to the project for this funding cycle.



Eastern New Mexico Rural Water System
By Jerold Widdison for the Utton Transboundary Resources Center.

The Congress authorized major federal funding for the Ute Pipeline in the Omnibus Public Land Management Act of 2009. This important milestone for the project was reached after about 45 years of effort. Attention now shifts to myriad details involved in actually constructing, financing, and administering the project.

Background

New Mexico created Ute Reservoir by damming the Canadian River near Logan in Quay County. The reservoir stores the State's share of the Canadian as allowed under the Canadian River Compact among New Mexico, Texas, and Oklahoma. The purpose of the reservoir was to create a sustainable water supply for communities that rely on the Ogallala aquifer, a water supply that is diminishing in both quality and quantity. Withdrawals from the aquifer in the service area are estimated at 249,000 acre-feet per year (afy) and recharge is estimated at 40,000 afy. The productivity of many wells has dropped dramatically and municipalities have turned to increasing the number of wells to maintain production levels. It is projected that the Ogallala aquifer as a water source for the area will last 10 more years.

Construction of the dam was completed in May of 1963, and an organization known as the Ute Dam Municipal Water Association was formed in September to move the project ahead. It included cities from Tucumcari south to Artesia. Congress authorized feasibility studies in 1966. A new organization, the Ute Reservoir Water Commission (URWC), was formed through a joint powers agreement in 1987. The N.M. Interstate Stream Commission (ISC) manages the water in the reservoir and is required to market it. In 1994, the ISC estimated the "firm annual yield" to be 24,000 afy except in extreme drought years. The firm annual yield represents the yearly amount of water that can be dependably supplied from the raw water sources of a given water supply system. In 1997, the ISC gave the URWC a first right of refusal on that 24,000 acre-feet of water for $36,000 annually through December 31, 2008. That date has now been extended, in view of the progress being made on the pipeline project. Had the date not been extended, the URWC would have been obligated to *purchase* up to the same amount of water for $25 per acre-foot, or about $600,000.

In 2001 with State approval, the eight entities in Curry and Roosevelt counties formed the Eastern New Mexico Rural Water Authority (ENMRWA) to plan, design, fund, and oversee the construction of the pipeline. The U.S. Bureau of Reclamation (Reclamation) works with ENMRWA on technical matters. In 2003, ENMRWA added members from Quay County, Tucumcari, Logan, and San Jon. Two years later those members withdrew but retained their share of reservoir water (about 7,550 afy) for future purposes, including supplying water for the "Ute Lake Ranch" community development on the south side of the reservoir. The pipeline project is thus committed to the future delivery of 16,450 afy to the remaining participants.

The Project as Planned

The Project consists of an intake facility on the south shore of the reservoir, a main water pipeline, and treatment, pumping, and delivery facilities. The pipeline will run almost due southward from Ute Reservoir as far as Portales. A number of "laterals" off the main line will bring water to Clovis, the other participating communities, and to some outlying areas of the counties. The plan is to pump the water from the reservoir to the 4,500-foot rim of the Caprock, and then to a water treatment plant near Grady. The treatment plant will serve the entire system. From the water treatment plant, the system will operate primarily by gravity flow, although three booster pump stations will be needed. Each participating entity will pay a share of the construction costs and the operation and maintenance costs of the pipeline and facilities. Each will also pay for the water itself, based upon the amount of water each entity has reserved in the Project.

Aside from construction costs, the benefited entities can expect to receive water at about $31 per acre-foot.

The cost estimate for the full Project was $500 million at the time of the 2009 federal authorization. According to Paul van Gulick, an engineer and Project program manager, there have been a number of studies regarding future water supply strategies for eastern New Mexico. Of these, the Ute Project shows the greatest benefit/cost ratio. The Project is necessary because of anticipated depletion of the Ogallala aquifer on which Project members rely and the consequent need for an alternative supply.

There is, however, some controversy. Opponents, especially in the Logan area, believe that when the fully operational Project will damage their lake/recreation-based economy. Logan relies on its seasonal resort of summer homes and tourism that are centered on the Ute Reservoir. Opponents argue that if the lake levels drop, those underpinnings of their economy will disappear. Reservoir levels have dropped over the last three years from 190,000 in 2010 to 118,000 acre-feet in August of 2013. By the end of December of 2013, the water level had recovered to about 143,000 acre-feet due to the late summer and fall rains. Still, the concerns about the effects of drought and the pipeline on the local economy remain.

Funding is a part of the debate. Opponents point out that the federal funding, while authorized, is largely unappropriated and assert that that Congress will never take the necessary action. They argue that the expenditures to date have been a waste of state monies and less expensive alternatives should be employed, such as purchasing water rights from agricultural users.

Some do not want the project to stop but would like some accommodation. One commentator asked that the municipal members of the Project turn to groundwater pumping during times of drought, thus preserving the recreational pool in the lake that Logan relies upon.

Each participating entity will pay a share of the construction costs and the operation and maintenance costs of the pipeline and facilities.

Project proponents have confidence that Congress will fund the Project, and the pipeline will be built to ensure the long-term viability of their municipal water supplies. The Ute Project is viewed as critical for the water future of Clovis and other towns. It is also important to the future of Cannon Air Force Base, and failure to build the water system could spell the departure of the base.

Legislation and Funding

Numerous projects of this kind in other states have been paid for largely by federal funds. Here, the authorized cost allocation is similar to other federally supported water projects: the federal government is to pay 75 percent, the State will cover 15 percent and the ENMRWA members will take care of 10 percent. The Project costs were estimated at about $436 million in 2008 dollars.

Federal: Initiatives to authorize and fully fund the Ute Project began to accelerate in the mid-2000s. By 2009, Senator Bingaman had incorporated the Ute Project bill and many other bills into the Omnibus Public Land Management Act (Act). The Act was signed into law on March 30, 2009. The Act authorized $327 million as the federal share of the funding. The federal authorization included a provision for indexing; that is, the actual amount appropriated will be adjusted to reflect future changes in federal indices for construction costs. It was anticipated that the project would be constructed in phases.

The other provisions of the 2009 Act pertaining to the Ute project are simple when compared with provisions for the Navajo-Gallup project and the *Aamodt* settlement (for more information see the Aamodt Adjudication and Navajo-Gallup Water Supply Project articles in this edition

During 2010, the member entities made good progress on the requirements. It is important to realize that the Ute Project is *not* a federal project. It will be built, owned, and operated by participating local governments.

of *Water Matters!*), because the project does not involve water rights settlements or court approvals. Nonetheless, the Act contains several federal requirements regarding project financing and engineering design. During 2010, the member entities made good progress on the requirements. It is important to realize that the Ute Project is *not* a federal project. It will be built, owned, and operated by participating local governments.

In years prior to project authorization, federal funds to support planning and design work were obtained by congressional "write-in requests." For example, Senator Bingaman's requests yielded $260,000 in 2009. Since the 2009 Project approval, annual funding is managed through federal budget processes with funds administered by the U.S. Bureau of Reclamation (Reclamation). The 2010 Energy and Water Appropriations Bill appropriated $1 million for design and initial construction of the intake facility at Ute Reservoir. Subsequent federal grants included $1.3 million in FY 2012 and $1.8 million in FY 2013. The 2014 Reclamation budget contains a $649,000 for the Ute pipeline.

The Project is relying on the passage of Senate Bill 715—the Authorized Rural Water Projects Completion Act to provide a funding stream from the federal government. The Act would provide mandatory funding for six authorized rural water projects at a level that would allow their completion within 20 years. The bill was introduced in April of 2013 and subsequently referred to the Senate Committee on Energy and Natural Resources. On November 21, 2013, the Committee ordered that the bill be reported favorably with amendments.

State: At the state level, the New Mexico legislature has provided Project money in each year from 2006 to the present. In 2006, $1.25 million was appropriated. In 2007, then Governor Richardson's "Year of Water" initiatives included $5 million for the Project, of which only $1 million was directly appropriated. As expected, however, the legislature also approved a $2.3 million capital outlay request for the project through the N.M. Water Trust Board (Board). In 2008, the legislature approved $4.5 million,

Ute Reservoir on the Canadian River

also through the Board. These last appropriations required 20 percent local participation in accordance with Board policy; that is, the local entities must pay 20 percent of the amounts as specified by the legislature. In 2009, another $4.4 million was appropriated, and the local participation amount was reduced to 10 percent. The legislature provided $2.9 million in 2010, $4.4 million in 2011, $3.8 million in 2012. Also in 2012, the ENMRWA received a preliminary award of $4.0 million. In total, the legislature has provided $32.55 million for front-end planning, engineering services, and construction. These monies will count as part of the state's 15 percent participation.

Water Trust Board

Incidentally, the creation of the Water Trust Fund and Board in New Mexico is owed in no small part to the early planning and fact-finding efforts on the Ute project, dating back to 2000–2001. A team from eastern New Mexico visited other states having similar regional and rural water projects to investigate and learn from their experiences. Other successful state models included significant investment to leverage local and federal funds to implement large-scale rural regional projects that could not otherwise be completed. The team brought these ideas back to New Mexico, and the eastern New Mexico legislators of the time, Pat Lyons and Joe Stell in particular, used this information to expand and give substance to the Ute Project plans. Over the next two years the Water Trust Fund and its managing Board became realities. For more information, please see the chapter "Water Trust Board" in this edition of *Water Matters!*.

Pre-Construction Activities

Since project approval in 2009, the Ute Project has been gathering momentum. The Project's sponsors presented draft legislation to the 2010 session of the legislature, seeking to transition responsibility for the project from the ENMRWA (which was formed by a joint powers agreement) to a new Eastern New Mexico Water Utility Authority (Authority). The legislation passed unanimously, establishing the Authority as a political subdivision of the state. The Authority is a formal and stable organization that enables the participating local governments to begin setting up specific procedures for their financial participation, such as revenue bonding procedures and user rate schedules. It provides the necessary organization for the Project's bonds to be offered in financial markets.

Incidentally, the creation of the Water Trust Fund and Board in New Mexico is owed in no small part to the early planning and fact-finding efforts on the Ute project, dating back to 2000–2001.

The Authority has a seven-member Board appointed by the Project area's communities and county governments. The Board has bonding authority rather than taxing authority. The Board became official on July 1, 2010 and adopted a financing plan on July 15. An umbrella Memorandum of Agreement between the Board and Reclamation concerning financing has been completed. Individual cooperative funding agreements for each phase of construction will follow as needed.

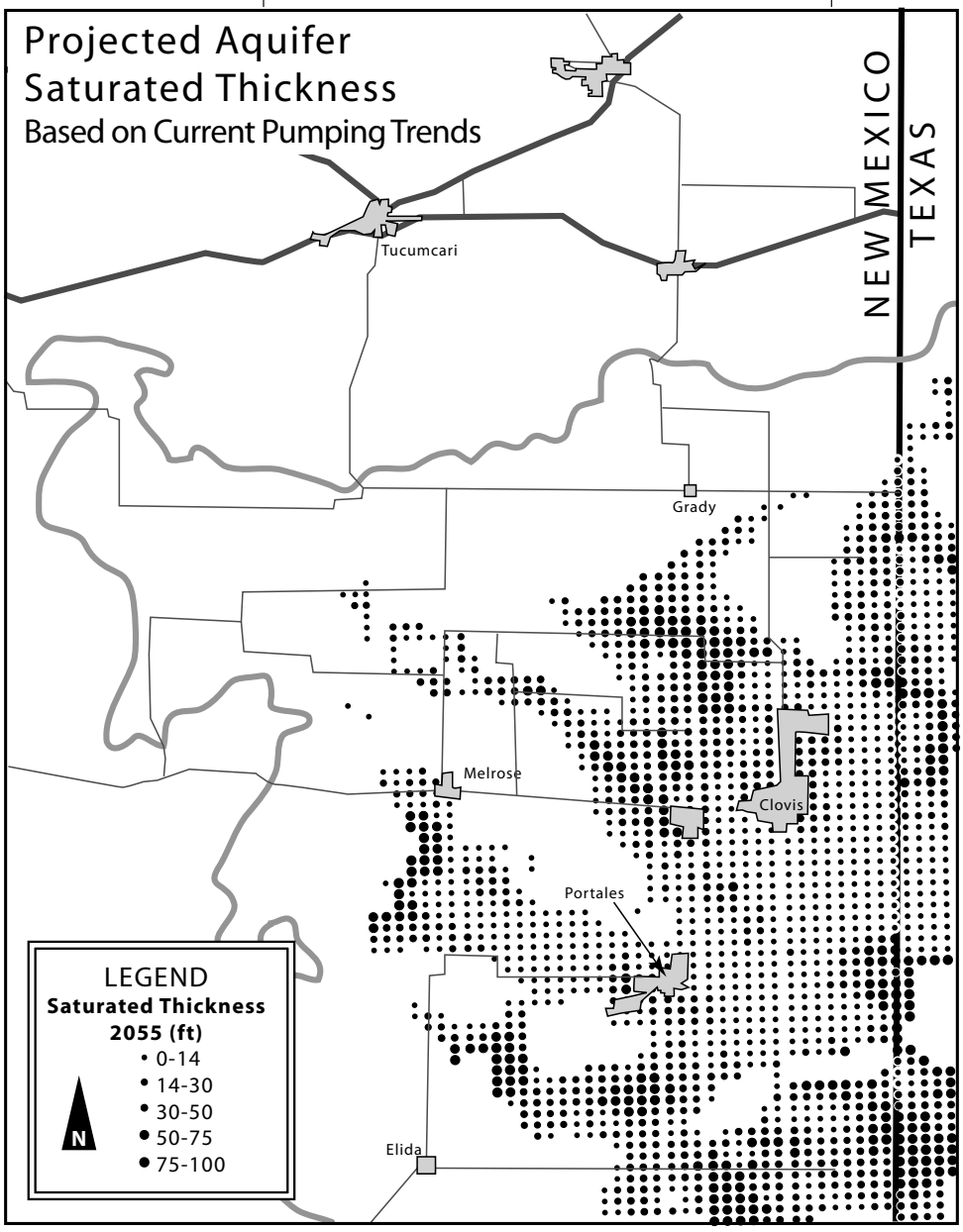
As for project planning and engineering, the standard "30 percent design" was completed in 2009, followed by a "value engineering" process. Reclamation completed a Design Estimates and Constructability (DEC) review. In parallel, it proceeded for over three years with federal environmental compliance activities including the preparation of an Environmental Assessment (EA), a Biological Assessment, and the issuance of a "Finding of No Significant Impacts" (FONSI). With these activities completed in early 2011, the groundbreaking ceremony for the first phase of the project took place in August 2011.

Projected Aquifer Saturated Thickness

Redrafted from CH2M Hill Technical Memorandum by C. Kenesson for *Water Matters!*

Meanwhile, the Albuquerque consulting firm of CH2M HILL was authorized to conduct a feasibility study for a wind energy plant that could generate revenues to offset some of the pipeline costs. This study indicated that a commercially operated wind farm of 200 megawatts capacity would be needed to pay for itself and to pay down a reasonable fraction—perhaps one-third—of the pipeline project cost. Currently, however, no market exists for the power that would need to be sold, inasmuch as other power-generating entities have met their alternative-source obligations. Moreover, existing transmission lines in the region are at capacity.

Generation of hydropower was also considered. It might be possible to drop Project water down the Caprock through turbines and sell the power at peak times, then pump the water back up in off-peak times. But capital costs would increase, and profit margins associated with the peaking factor might be too small. Therefore, hydropower is currently thought to be too expensive.



Redrafted from CH2M Hill Technical Memorandum:
Fresh and Brackish Groundwater Resources in the ENMRWS Project Area

Construction Activities

Construction bidding was delayed for one year while the Project acquired additional land needed for improved access to the intake facility. Another delay was encountered when the village of Logan filed a lawsuit in federal district court in April of 2012 challenging the environmental FONSI and seeking to enjoin construction. In January of 2013 the federal district court denied the motion for an injunction. The next month, a full notice to proceed was issued to ASI Constructors, Inc. Logan has appealed the lower court decision to the Tenth Circuit of Appeals.

Intake Facility: Construction of the intake facility is expected to take 22 months. Design of Phase I of the intake facility was completed and construction was begun in early 2013. By March 2013, workers began work on a $15 million intake station on the south shore of Ute Lake that is to be completed in July 2014.

Interim Groundwater Pipeline: To meet the needs of communities running out of municipal groundwater, the Project will be built in phases in areas where the need it greatest,

rather than beginning at the reservoir and building south. The Authority will obtain the interim water supply by leasing or purchasing agricultural water rights until the project extends to the reservoir.

The contract engineering firm, CH2M HILL, is currently advancing design of the Ute pipeline trunk and laterals from Cannon AFB on south. This design phase of the Project is called the Interim Groundwater Pipeline (IGWP). The IGWP is intended to provide Eastern New Mexico Water Utility Authority members with an interim regional solution to localized problems from declining well production. The IGWP is a distinct set of components forming the "backbone" of the water system that can be constructed in phases to deliver groundwater to the member communities and Cannon Air Force Base (CAFB) several years before water is delivered from Ute Reservoir. This approach is necessary because the groundwater supply in many areas is projected only to be productive another 10 years and the construction of the entire system is estimated to take 20 years.

The purpose of the IGWP is to build first those portions of the project in proximity to member communities and CAFB to mitigate ongoing water supply quantity and quality problems. The remainder of the pipeline will be built in future phases. Presently, members are constrained to existing well fields that are near their municipal water transmission infrastructure. The Project pipeline passes through outlying areas where water production is expected to persist longer as indicated by the distribution of blue and green cells shown in the accompanying graphic to the right. These cells represent remaining saturated thickness after fifty years of pumping based on current pumping trends. The IGWP will cost an estimated $88 million.

Conclusion

Construction of the Eastern New Mexico Rural Water System is moving ahead. The New Mexico legislature has steadily provided funding and Congress is working legislation to provide the 75 percent federal share of the funding. The Project has become a flash point over water between the economies built around the reservoir as a recreational lake and those economies planning to depend on the reservoir as a municipal water supply. The construction schedule and design have been adapted to meet the needs of communities with wells that are becoming less and less reliable. The livelihoods of many thousands of people depend on how these conflicts, both local and congressional, are resolved.

By Jerold Widdison (2007)

Latest Update by Paul van Gulick. ENMRWS Project Manager (July 2013)

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Sarah Armstrong, University of New Mexico School of Law, Class of 2015

Stefanie Beninato, Ph.D., J.D.

Paul van Gulick, P.E., Program Manager, ENMWUA

Scott Verhines, P.E., Former Program Manager, ENMWUA

The Rio Grande as an International River

"The Rio Grande is the fifth longest river in the United States and among the top twenty in the world. It extends from the San Juan Mountains of Colorado to the Gulf of Mexico (1,901 miles) and forms a 1,255 mile segment of the border between the United States and Mexico."

International Boundary and Water Commission, **http://www.ibwc.state.gov/CRP/riogrande.htm**

The Rio Grande flows for approximately 1,900 miles from the mountains in Colorado to the Gulf of Mexico. Its waters are shared by three states, Colorado, New Mexico and Texas; by two countries, the United States and Mexico; and with numerous Native American Tribes and Pueblos. It is a *successive international watercourse* flowing in the United States, crossing the international border, and flowing to Mexico where it becomes a *contiguous international watercourse,* forming the border and shared by both the United States and Mexico.

New Mexico is in the middle of the course of the Rio Grande, dependent on water deliveries from Colorado upstream and with obligations to Texas and Mexico downstream. At the turn of the 20th century, the New Mexico Territorial Government was in the middle of the controversy that determined the authority of state and federal governments to control and allocate water resources and that led to the 1906 Rio Grande Convention between the United States and Mexico. Today, New Mexico is in the middle of the United States' obligations to deliver water to Mexico with the dams of the Elephant Butte and the Caballo reservoirs squarely within New Mexico, more than 100 miles from the United States border with Mexico.

The Rio Grande is divided into two major river reaches and has different legal regimes for each. New Mexico is primarily concerned with the Rio Grande from the headwaters in Colorado to Ft. Quitman in Texas, a distance of approximately 670 miles. This section of the river is the subject of the 1906 Rio Grande Convention (Treaty) between the United States and Mexico. The lower section of the Rio Grande from Ft. Quitman to the Gulf of Mexico is the subject of the 1944 Rivers Treaty between the United States and Mexico; the 1944 Rivers Treaty also includes the Colorado and Tijuana Rivers.

As with many international and interstate rivers, the Rio Grande's history, particularly that leading up to the 1906 Rio Grande Convention, helps explain the law of the river today.

New Mexico is in the middle of the course of the Rio Grande, dependent on water deliveries from Colorado upstream and with obligations to Texas and Mexico downstream.

"The great lengths to which the United States was willing to go in fulfillment of ite 'moral obligation' to provide Mexico with a fair share of Rio Grande waters suggest that regardless of its formal reliance on the Harmon Doctrine, it did not consider itself free to exhaust the flow of the Rio Grande before it reached Mexico."

STEPHEN C. MCCAFFREY, THE LAW OF INTERNATIONAL WATERCOURSES, 2nd ed. 102 (2007).

History

The migration to settle lands in the Western United States greatly increased the demand for irrigation water. It is estimated that irrigated acreage in the San Luis Valley in Colorado, near the headwaters of the Rio Grande and in the New Mexico Territory, expanded by 196,000 acres between 1880 and 1896. This increased demand in combination with drought conditions left the Rio Grande dry at El Paso and Juarez.

With no water to irrigate the fields that had been cultivated for centuries, the Mexican government lodged formal complaints with the United States beginning in 1894. The Mexican government asserted that the water rights in the Juarez region had priority over the newer uses in the San Luis Valley in Colorado. The United States asked the Attorney General to examine its legal obligation to deliver water downstream to Mexico. Attorney General Judson Harmon opined that the United States is within its legal right to completely deplete the flow of the Rio Grande, earning the attribution of his name on the doctrine of absolute sovereignty. The Harmon Doctrine is used today primarily by upstream states that assert complete control over watercourses, but it was not used by the United States during the negotiations with Mexico.

In addition to demands for the United States to restore the flow of the Rio Grande to Mexico, the Mexican government filed claims for damages for approximately $70 million. The decline in the Juarez population between 1875 and 1894 from 20,000 to 10,000 is also attributed to the lack of water in the Rio Grande.

The farmers in the El Paso Valley in the United States experienced the same water shortages as the farmers in Mexico. Civic leaders, landowners, and speculators in El Paso began promoting an international dam to capture flood flows and to secure the irrigation supply for both sides of the border. The dam site proposed by the El Paso interests would cause a significant portion of the Mesilla Valley in southern New Mexico to be inundated.

During this same time period, entrepreneurs and land promoters in the Territory of New Mexico garnered financial backing from a British company to build a dam on the Rio Grande at Elephant Butte. The Rio Grande Dam & Irrigation Company planned a private, for-profit enterprise to provide water within an irrigation district. Elephant Butte Dam was authorized by the Territorial government, and in 1895 the Company received a right-of-way from the U.S. General Land Office to build the dam on public lands.

The Elephant Butte Dam and the International Dam at El Paso were not compatible projects. They represented changing federal policies, with the Elephant Butte Dam reflecting policy from the late 19th century when the United States promoted private enterprise to settle the West and the International Dam representing the Progressive Era of federal involvement, if not control, over land and water in the Western United States.

The El Paso interests and Progressive policies prevailed within the federal government, and the United States initiated litigation to invalidate the rights of the Rio Grande Dam & Irrigation Company. The United States alleged that the proposed Elephant Butte Dam would interfere with navigation on the Rio Grande. If the courts determined that the Rio Grande was navigable, the federal government had jurisdiction under the Commerce Clause to regulate the water use; if not,

the states may do so, or in this case, the Territorial government of New Mexico. The United States used the claim of navigability and years of litigation to bankrupt the private Rio Grande Dam and Irrigation Company and wrestle control of the waters of the Rio Grande away from the private company and the Territory of New Mexico.

In 1902 Congress passed the Reclamation Act providing federal funds, engineering expertise, and federal authority over waters in the Western United States, primarily to benefit public lands. The Reclamation Service, now the U.S. Bureau of Reclamation, highlighted its scientific and engineering expertise at the 1904 National Irrigation Congress held in El Paso to which it invited representatives from Mexico. Reclamation presented a new proposal for apportionment of the Rio Grande recognizing the relationship among the uses in the Mesilla Valley, irrigation in the El Paso Valley, and the Mexican claims against the United States. The Reclamation plan was proposed to resolve all of these issues.

The Reclamation engineering studies indicated the best site for a reservoir was at Engle, New Mexico, downstream, but very near, the site proposed by the Rio Grande Dam and Irrigation Company. Reclamation proposed that the water stored at the Engle Dam be apportioned to serve lands currently and historically under irrigation as well as 110,000 new potentially irrigable acres in New Mexico, 20,000 acres in Texas above El Paso, and 50,000 acres below El Paso in both the United States and Mexico. The Reclamation proposal was discussed extensively and approved by the representatives of the New Mexico, Texas, and Mexican governments at the 1904 National Irrigation Congress.

In 1905 Congress passed an "Act Relating to the construction of a dam and reservoir on the Rio Grande, in New Mexico, for the impounding of the floodwaters of said river for purposes of irrigation." The history of the Act indicates that its purpose was to supply irrigation to lands as agreed upon at the 1904 National Irrigation Congress. However, the Act does not mention Mexico, and it does not apportion the water to be supplied by the dam other than to say that the water is for lands in New Mexico and Texas which "can be supplied with the stored water at a cost which shall render the project feasible and return to the reclamation fund the cost of the enterprise…," leaving considerable discretion to the Reclamation Service.

The federal legislation was prompted by a desire to settle water controversies with Mexico but was also proposed to settle disputes in New Mexico that arose because of competing policies for water development: one favoring private companies and the other maintaining federal oversight. The ultimate solution on the Rio Grande was federal oversight and control of the large infrastructure with local irrigation associations representing the users.

This history of conflict and compromise over the Rio Grande provides the background explanation for the provisions of the 1906 Rio Grande Convention.

1906 Rio Grande Convention (Treaty)

The 1906 Convention between the United States and Mexico for the Equitable Distribution of the Waters of the Rio Grande (1906 Rio Grande Convention) was possible because of the Reclamation studies that led to the informal agreements reached at the 1904 National Irrigation Congress, which, in turn, were the basis of the 1905 Congressional authorization for the dam at Engle, New Mexico.

The 1906 Rio Grande Convention required that the United States construct "the proposed storage dam near Engle, New Mexico, and the distributing system" to deliver 60,000 acre-feet of water annually in the bed of the Rio Grande at the headworks of the Old Mexican Canal near Juarez, Mexico. Deliveries are made according to a monthly schedule peaking at 12,000 acre-feet per month in April, May, and June.

The delivery of water is made at no cost to Mexico. The United States agreed to pay the

"The United States of America and the United States of Mexico being desirous to provide for the equitable distribution of the waters of the Rio Grande for irrigation purposes, and to remove all causes of controversy between them in respect thereto, and being moved by considerations of international comity, have resolved to conclude a Convention for these purposes…"

—Preamble, 1906 Rio Grande Convention

full cost of constructing the dam at Engle and associated delivery works. In 1906 the Reclamation Service was in the process of entering repayment contracts with the irrigation water user associations in New Mexico and Texas for their portion of the cost for the Engle Dam, leaving only those costs associated with the deliveries to Mexico to be paid by a congressional appropriation. In consideration for delivery of water, Mexico waived all claims to water between the Mexican Canal and Ft. Quitman and declared all claims against the United States arising from the upstream diversions to be fully settled.

The Rio Grande below Ft. Quitman depends on inflow from tributaries in Mexico. The apportionment of this section of the river was made in the 1944 Rivers Treaty between the United States and Mexico that also apportioned the Colorado and Tijuana Rivers. The 1906 Rio Grande Convention is a foundational agreement for the 1944 Rivers Treaty and for the principles of equitable and reasonable utilization that were codified in 1997 United Nations Convention on the Non-navigational Uses of International Watercourses.

1944 Rivers Treaty and the IBWC

The Colorado River was the next source of tension over water between the United States and Mexico. Mexico is at the farthest downstream point on the Colorado River in a very arid region dependent on water flow from the United States. Mexico indicated its unwillingness to negotiate on the Colorado River unless the Rio Grande below Fort Quitman was included because farmers in Texas wanted an assured water supply from the tributaries flowing from Mexico. The result is a comprehensive treaty covering all shared watercourses: the 1944 Treaty between the United States and Mexico for the Utilization of the Waters of the Colorado and Tijuana Rivers and of the Rio Grande (Rio Bravo) from Fort Quitman, Texas, to the Gulf of Mexico (1944 Rivers Treaty).

The 1944 Rivers Treaty added responsibility for border water to the International Border Commission's authority and renamed the organization, the International Border and Water Commission (IBWC). The IBWC consists of an engineer from each country and such advisors as each country chooses.

The IBWC has considerable discretion and unique authority as an international institution. Under its original functions as a border commission, the IBWC can issue Minutes establishing and delimiting the border between the United States and Mexico. The Minutes are effective and binding on both countries unless objected to by either country or as otherwise required by the Minute.

Through the IBWC, the United States and Mexico have constructed joint projects such as dams, bridges, and sanitation facilities; set water quality standards such as those for salinity; and adjusted water delivery schedules in response to emergency situations. The broad authority of the IBWC, which has been in effect for over 70 years, permits water management to adapt to changing conditions.

Legal Principles and Hierarchy of Laws

An understanding of the hierarchy of laws in the United States puts the 1906 Rio Grande Convention in perspective with other principles of New Mexico water law. If the law is viewed as a pyramid, the Constitution of the United States provides the structure. International treaties and the laws of the

United States are at the pinnacle because Article VI describes them as "the supreme law of the land."

Under of the Supremacy Clause, one of the first priorities on the Rio Grande is to satisfy the rights and obligations under the 1906 Rio Grande Convention. Native American Tribes and Pueblos, *acequias,* individuals and other entities have water rights recognized by the state law system as having priority dates earlier than the rights of Mexico under 1906 Rio Grande Convention. Some scholars assert that the rights contained in international treaties have legal supremacy.

The waters of the Rio Grande are also subject to the rights and obligations of the Rio Grande Compact among New Mexico, Colorado, and Texas. States may enter into compacts for the allocation and sharing of waters, and bind their respective states, but Congress must approve each compact. Article I of the U.S. Constitution limits the powers of states and Section 10 of Article I provides that "No State shall, without the consent of Congress, . . .enter into any Agreement or compact with another State…." The Congressional action of Consent makes a compact between states a federal law. Under the Supremacy Clause, not only are treaties the supreme law of the land, but the Laws of the United States are also "the supreme Law of the Land; and the Judges in every State shall be bound thereby."

What does this pyramid mean for water matters within New Mexico? The rights of most water users in New Mexico are based on the state law of prior appropriation or on federal law. Water users in New Mexico have rights to the water that is legally available for appropriation after satisfying the international and interstate Compact requirements.

Current Issues

Global and local studies indicate that climate change will, and may already be, affecting water supplies on both sides of the border by increasing the variability, decreasing the precipitation, and increasing the evaporation. The mixture of snow and rain is changing as is the timing of snowmelt. These factors contribute to the management complexities for the Rio Grande and delivery to rights holders within the State.

Groundwater basins are crossed by international borders. Groundwater utilization should follow the same international legal principles of equitable and reasonable utilization as for surface water, however the mechanisms for this are not yet in place. The IBWC included two paragraphs on border groundwaters in Minute 242 issued in 1973. Minute 242 sets limits on pumping near San Luis on the Arizona-Sonora border "pending conclusion…of a comprehensive agreement on groundwater in the border areas…." and contains a broad statement that the United States and Mexico will consult with each other prior to undertaking new surface or groundwater developments that might adversely affect the other country.

As with the surface waters of the Rio Grande in the early 20th century, scientific knowledge and willing negotiations are needed to develop the mechanisms to share border groundwaters. The objective of the 2006 United States-Mexico Transboundary Aquifer Assessment Act is to "systematically assess priority transboundary aquifers" in order to better utilize this valuable water resource along the border. This is a start to the process.

> "This 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 Thing in the Constitution or Laws of any State to the Contrary notwithstanding."
>
> — U.S. CONST., art. VI, cl. 2.

Conclusion

The New Mexico legislature is concerned, from year-to-year, about meeting the day-to-day needs for water within the State. The efforts are complex and increasingly difficult as demand increases and supply fluctuates. As surface water in the Rio Grande is allocated and re-allocated, the demand for water continues placing increasing stress on groundwater resources.

How to share the groundwater aquifers that cross the international border is a pressing issue. International negotiations are the exclusive province of the federal government. However, the history of the 1906 Rio Grande Convention teaches that resolution of issues of local water availability pursued through state officials may establish the framework for resolution of such international issues.

By Margaret J. Vick, J.S.D. (2012)

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"The Salt Basin is a misleading name for the quality of water on the New Mexico side; it's good fresh water and it's to be valued."

Joe M Stell,
New Mexico House of Representatives (1987–2006)

Salt Basin

The Salt Basin of south-central New Mexico presents several problems of resource utilization. The basin is a large but little-known area—dry, inhospitable—but it has a sought-after supply of groundwater and perhaps a supply of natural gas and oil. In addition, the basin features vast stretches of grassland in an essentially intact natural environment. The "hows" and the "whethers" of using and conserving these resources have been vigorously argued for several years.

Groundwater Resources

The Salt Basin encompasses approximately 1.5 million acres in New Mexico and an equally large area in west Texas (see map). The basin is an area of interior drainage, a "closed basin" having no outlet. Much of the basin's vegetation has been described as desert grassland, differing from the creosote bush and mesquite that dominate other parts of the Chihuahuan Desert. On the whole, the New Mexico portion of the Salt Basin has been depicted as "wild and beautiful, relatively untouched by man."

Two small streams are the major sources of the basin's groundwater, the Sacramento River and Piñon Creek. Flowing from the Sacramento Mountains, these streams rapidly sink into the ground and disappear. Smaller amounts of groundwater recharge come from precipitation within the basin as a whole. Geologic and hydrologic studies suggest that annual input (recharge) to the entire basin's groundwater is between about 90,000 and 200,000 acre-feet. Most of the groundwater is found in limestone beds that extend deep beneath the surface. Fractured and laced with cavities, the limestone allows groundwater to flow slowly eastward and southeastward.

At the lowest parts of the basin, known in New Mexico as Crow Flats and in Texas as Dell Valley, groundwater formerly emerged in shallow salty lakes, or *playas*. In 1947, however, irrigated agriculture started up near Dell City, using water pumped from wells. The pumping soon dried up the lakes completely. Irrigated acreage and the amounts of water used have varied over the years, averaging perhaps 30,000 acres and 100,000 acre-feet of water. A small acreage has also been cultivated, at times, on the New Mexico side of the state line.

Two small streams are the major sources of the basin's groundwater, the Sacramento River and Piñon Creek.

Resource Evaluations

Concern for water supply led the New Mexico State Engineer to declare the "Salt Underground Water Basin" in 2000. Subsequent studies indicated a potential for perhaps 15,000 to 100,000 acre-feet of sustainable groundwater withdrawal annually.

Then in 2006, the U.S. Geological Survey (USGS) and Sandia National Laboratories published a summary of then-current information about the Salt Basin's water in *Knowledge and Understanding of the Hydrogeology of the Salt Basin in South-central New Mexico and Future Study Needs*. The report posed several topics/questions needing better answers: *Quantify* the basin's rates of groundwater recharge, discharge, volume in storage, and amounts recoverable; *identify* areas vulnerable to rapid subsurface contamination; *determine* water quality distribution; *develop* a computer model of groundwater flow for use in evaluating the impacts of development.

Most of the Salt Basin land in New Mexico is federally owned and administered by the U.S. Bureau of Land Management (BLM), although there are appreciable amounts of state land in scattered sections and in a few consolidated blocks. Oil and gas interests proposed exploratory drilling more than a decade ago, and a first test well was completed in 1997, which found gas. At the time, the BLM believed there was a low potential for economically recoverable amounts of oil and gas, yet leasing was eventually authorized on some 252,000 federal acres. The amount actually leased at present is approximately 12,000 acres.

Meanwhile, the N.M. Wilderness Alliance and other environmental groups began efforts to have the basin's land retained without development. Using "Otero Mesa" as a general name for virtually the entire New Mexico portion of the Salt Basin, the Alliance identified 23 "wilderness inventory units." In those units the Alliance deemed more than 500,000 acres of public land suitable for wilderness designation.

For its part, BLM outlined five Wilderness Study Areas (WSA) and designated five Areas of Critical Environmental Concern (ACEC). Those areas are much less extensive than the areas proposed by the Wilderness Alliance.

Concern for water supply led the New Mexico State Engineer to declare the "Salt Underground Water Basin" in 2000.

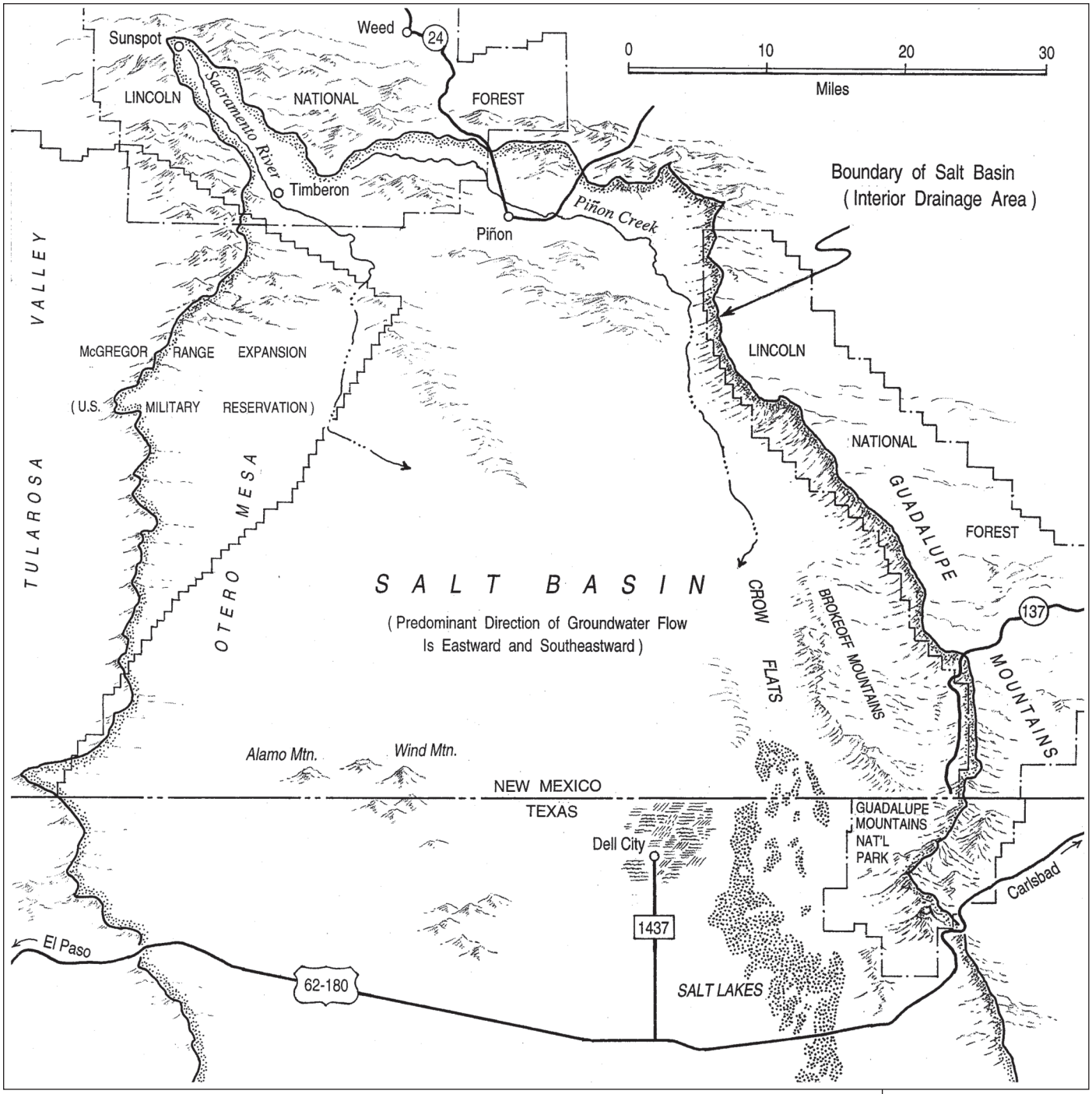
Oil and Gas Controversy

The main thrust of the Alliance's proposals is protection of the grasslands as natural landscapes undisturbed by oil and gas exploration. Anticipating degradation of the basin by tangles of haul roads, drill pads, waste pits, power lines, and the like, the Alliance's coalition has fought the BLM both in court and in the arena of public opinion.

The basin's groundwater also became a concern. The limestone aquifers may be quite susceptible to contamination from the injection of petroleum-related waste, or from spills and leaks from pits and materials on the land surface. Environmentalists point out that in 2005 the N.M. Oil Conservation Division compiled information regarding statewide groundwater effects from leaks, spills, and releases from petroleum operations. Nearly 1,400 groundwater pollution instances were attributed to oil and gas activities during the preceding decade.

In 2004, an alternative plan was proposed, to create a National Conservation Area of 300,000 acres in the Salt Basin where no energy exploration would be allowed and with restrictions imposed on the remainder of the area. But this alternative was rejected by BLM. At length a lawsuit was brought by the State of New Mexico and the Wilderness Alliance, and in April of 2009, the federal Tenth Circuit Court of Appeals found in favor of the plaintiffs/appellants.

In brief, the Court ruled that the BLM's original *Resource Management Plan Amendment*, which opened most of the basin to oil and gas leasing—with limited



protection for the grasslands—was inadequate. Among planning alternatives, so the decision indicated, BLM should have evaluated an alternative that closed the area to petroleum leasing—weighing that use "against other possible uses—including conservation to protect environmental values." The Las Cruces Bureau of Land Management is currently working on a Tri-County Resource Management Plan and Environmental Impact Statement. As of November of 2013, the Plan and EIS were available for public comment.

The Wilderness Alliance, in contrast, has continued to press for a National Conservation Area, by sponsoring petitions and tours, etc., especially in the Alamogordo area.

Then in 2010 another possibility arose: perhaps the President might designate all or

Salt Basin

By Jerold Widdison for the Utton Transboundary Resources Center.

In the meantime, three applications for water rights are pending at the Office of the State Engineer—all of which have received protests.

some sizable part of the federal lands in the Salt Basin as a national monument. That could achieve at the stroke of a pen all or most of the environmentalists' objectives. In 2012, Senators Udall and Bingaman asked President Obama to consider designating Otero Mesa as a National Monument, which is a part of the Salt Basin. As of December of 2013, Otero Mesa had not been approved for National Monument status.

Federal Legislation to Date

The federal legislation, N.M. Aquifer Assessment Act of 2007, directed the Interior Department (specifically USGS) to study several New Mexico aquifers, including those of the Salt Basin. More recently, the Omnibus Public Land Management Act of 2009 called for continuation of the USGS study efforts, which deal with the questions pointed out in the above-mentioned 2006 report. The studies were to be completed by 2011 but have not yet been completed as of October of 2013. The USGS has, however, published "*Estimates of Mean-Annual Streamflow and Flow Loss for Ephemeral Channels in the Salt Basin, Southeastern New Mexico*" in 2009. This is not a comprehensive Aquifer Assessment.

Applications to Appropriate Water

In the meantime, three applications for water rights are pending at the Office of the State Engineer—all of which have received protests. The applicants include: 1) Salt Basin ranchers in New Mexico, working together as Last Chance Water Company. Last Chance applied for 100,000 acre-feet of water rights that the company would plan to sell to other users; 2) the Interstate Stream Commission (ISC). The ISC applied for a total of 90,000 acre-feet from three applications for possible use in such New Mexico communities as Ruidoso, Cloudcroft, and Alamogordo, and/or to help meet interstate compact obligations on the Rio Grande and the Pecos River. Such a compact option might involve exchanging groundwater for river water owed to Texas; 3) Cimarron Agricultural Ltd., a subsidiary of El Paso-based Hunt Building Company. Cimarron applied to develop and transfer more than 17,000 acre-feet of agricultural water rights to municipal and commercial use in West Texas, southern New Mexico, and Ciudad Juárez, Mexico.

One enormous hurdle that would face all applicants would be the cost of delivering water from the remote Salt Basin to areas in need of water. Costs would run to many millions of dollars, depending on market locations and transmission facilities.

The three water rights applications obviously add even more uncertainty to a complex and difficult dialogue. As 2013 drew to a close, the future of the Salt Basin remained quite unknown.

By Jerold Widdison (2007)

Last Update by Stefanie Tsosie,
University of New Mexico School f Law,
Class of 2015 (2013)

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Stefanie Beninato, Ph.D., J.D.

Brigette Buynak, J.D.

Nathan Newcomer,
New Mexico Wilderness Alliance

> "The creation of a Water Trust Fund and Board in New Mexico is in no small part due to the early planning and fact finding efforts on [the Ute pipeline] project back in 2000/2001."
>
> *Water Matters!*, Utton Transboundary Resources Center, UNM School of Law

Water Trust Board

Background

In 2001, the New Mexico legislature passed the Water Project Finance Act and made the following findings:

- New Mexico is in a desert where water is a scarce resource;
- The economy depends on reasonable and fair allocation of water for all purposes;
- The public welfare depends on efficient use and conservation of water;
- New Mexico must comply with its delivery obligations under interstate compacts; and
- Public confidence and support for water use efficiency and conservation are based on a reasonable balance of investments in water infrastructure and management.

The stated purpose of the Water Project Finance Act is to provide a financing mechanism to promote water use efficiency, water resource conservation and protection, and fair distribution and allocation of water to all users.

The Water Trust Board was created in the Act. Its purpose is to: 1) oversee and administer the Water Trust Fund and Water Project Fund; 2) review and recommend funding for qualifying water projects to the legislature; and 3) pursue additional funding opportunities. The Water Trust Board was also tasked, in collaboration with the Office of the State Engineer and the Interstate Stream Commission, with preparing and implementing a comprehensive State Water Plan.

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Membership of the Board

The Board is composed of fifteen members, over half of whom are officials of the State of New Mexico. The state officials or their designees are as follows:

- State Engineer
- Executive Director of the N.M. Finance Authority
- Secretary of Environment
- Secretary of Energy, Minerals and Natural Resources
- Director of the Department of Game and Fish
- Executive Director of the N.M. Municipal League
- Executive Director of the N.M. Association of Counties
- President of the Navajo Nation
- Director of the Department of Agriculture

The six members of the public represent the following stakeholders and are appointed by the governor and confirmed by the state senate:

- the environmental community;
- an irrigation or conservancy district that uses surface water;
- an irrigation or conservancy district that uses groundwater;
- acequia water users;
- soil and water conservation districts; and
- one public member appointed by the Commission on Indian Affairs.

The Water Trust Board is charged with prioritizing projects for recommendation to the legislature for financing from the Water Project Fund and the Water Trust Fund.

Type of Projects Funded

By statute, the Water Trust Board may fund five types of projects:

1. Storage, conveyance, and delivery of water
2. Implementation of the Endangered Species Act collaborative programs
3. Restoration and management of watersheds
4. Flood prevention
5. Conservation, recycling, treatment, or reuse

Prioritization

The Water Trust Board is charged with prioritizing projects for recommendation to the legislature for financing from the Water Project Fund (WPF) and the Water Trust Fund (WTF). It adopts rules and regulations governing the terms and conditions of grants or loans made from the Water Project Fund. The Board's prioritization criteria include: projects that have urgent needs, regional projects and projects that share services to achieve operating efficiencies, and projects that have greater contributions of local funding.

Projects with urgent needs are those that address public health threats, Safe Drinking Water Act compliance, dam safety, and wildfire public safety. The Water Trust Board may accept lesser levels of organization readiness or other standards if the project is determined to be urgent.

The Water Trust Board distributes funds each year based on the relative merits of applications received with a goal of considering geographic balance and balance between rural and urban projects.

General guidelines for distributing funds among the categories of water projects are: water conveyance 60 to 75 percent, conservation 15 to 30 percent, watershed management 5 to 15 percent and Endangered Species Act and flood prevention up to 10 percent each. The exact amount of funding

that is distributed to each project category is determined based on the applications received that year as well as available funding levels. Within each category, priority is given to those projects that are ready to put "the shovel in the ground" with all water rights, funding, and design requirements in place at the time of award. However, in some cases funding may be provided for some planning activities for projects that are not yet ready for construction. Matching contributions from federal or local funding sources are required for all projects. These criteria are designed to insure the implementation of a sustainable infrastructure for the water structures of New Mexico.

New Mexico Finance Authority's Role

The New Mexico Finance Authority (NMFA) makes loans or grants to qualifying entities for qualifying projects authorized by the legislature. The NMFA serves as staff for the WTB, assists in the process for applications and multi-agency technical review, and suggests the financing structure for qualifying water projects.

Legislative History

Water Trust Fund: The 2001 Act established the Water Trust Fund in the state treasury. It is invested by the State investment officer as land grant permanent funds. The WTF is designed to receive appropriations, donations, or money that would be calculated in the annual distribution to the Water Project Fund. The WTF was to be funded at a $100 million level, but that has not yet occurred. In 2006, the WTF received its first appropriation of $40 million. In addition, the voters passed a constitutional amendment to make the WTF a dedicated fund. By making the WTF a constitutionally created fund, like the Severance Tax Fund, the fund cannot be raided for other uses in periods of state budgetary crises or shortfalls. Currently the State has four permanent funds.

Water Project Fund: The Water Project Fund is funded through a distribution of not less than $4 million per year from the Water Trust Fund and 10 percent of the severance tax bond proceeds distributed annually. The money in this fund does not revert to the general fund at the end of any given fiscal year, but guidelines establish a three-year expenditure term.

The WPF may be used for loans and grants to qualified entities and projects approved by the legislature.

In 2005, the Act was amended to specify that 10 percent of the funds in the Water Project Fund shall be dedicated to the State Engineer for water adjudications and 20 percent of the money dedicated for water rights adjudications shall be allocated to the Administrative Office of the Courts to pay for the courts' costs of these adjudications.

The WPF may be used for loans and grants to qualified entities and projects approved by the legislature. The Act authorizes the N.M. Finance Authority to issue revenue bonds payable from the proceeds of loan repayments into the WPF if the NMFA deems it necessary to replenish the principal balance of the fund.

In 2007, the process for planning, funding, and monitoring water and wastewater infrastructure in New Mexico was scrutinized. This review led to new policies from the governor's office, which were set forth in an Executive Order dated November 2, 2007. The Executive Order created a Water Cabinet consisting of the heads of eight state government departments, including the Office of the State Engineer/Interstate Stream Commission and the Office of the Governor. Estevan López, Director of the Interstate Stream Commission, was appointed as the first chair. In 2013, Scott Verhines, State Engineer, served as the chair.

The Water Cabinet is responsible for aligning the State Water Plan with other state activities and promoting interagency coordination on water and wastewater issues. A new division, the Water and Wastewater

Entities applying must submit information about their organizational structure, rates, and other water system information, in addition to the project specific information and budget.

Infrastructure Development Division (WWIDD) was created within the N.M. Environment Department. The Drinking Water Bureau and Construction Bureau of NMED are located in the new division. This new division was created to lead an interagency effort to bring consistency and coordination to the process of funding water and wastewater infrastructure. Another goal of the WWIDD was to create a uniform application for communities seeking state or federal funding. The Water Trust Board adopted new policies and criteria implementing these new policies on November 7, 2007, and began using the new Uniform Funding Application in 2008.

Application Process

The Water Trust Board funding process requires completion of a Uniform Funding Application as well as completion of a specific WTB application for the appropriate project category. Both of these are submitted online.

Entities applying must submit information about their organizational structure, rates, and other water system information, in addition to the project-specific information and budget. The Uniform Funding Application requires information on the population served by project, regional partners, whether the applicant has an asset management plan, whether the applicant has secured water rights, as well as information on rate ordinances and water and wastewater rates.

The WTB application also requires current financial information including lists of all debt, the three most recent fiscal-year audit reports, and sources of local funding. The application requires information on secured water rights, metering and measuring, billing policies, rate structures, and water conservation for water conveyance and storage projects. Other specific information is required for projects in other categories. For example, if projects in the watershed category are claiming to provide improvements to water yield, the methods for measuring water yield must be specified. All applications require a resolution of the governing body authorizing the submission of an application to the Water Trust Board.

In 2012, the WTB Chair appointed a policy task force to find ways to streamline the application process, to provide clarity for applicants and the legislature, to recognize the value of the planning steps, and to better utilize available fiscal resources. The Board accepted the recommendations of the task force including making the application a two-step process. In the fall of each year, the application includes basic applicant and project information, which is used to create a list of eligible projects for the legislature's consideration in the following January. The spring application contains more project information and verification of compliance with applicable laws. The recommendations are being implanted in the 2014 funding cycle.

Appropriations and Funding

In 2002, the State appropriated $10 million from the capital projects fund to the Water Project Fund for expenditure in fiscal years 2002 through 2007. In 2007, the State also appropriated another $7.5 million from the Capital Projects Fund for authorized water projects for expenditure in fiscal years 2002 through 2007. In 2003, the legislature passed HB 882 which dedicated 10 percent of the Severance Tax Bond proceeds to the Water Project Fund.

The Board produces an annual report to the legislature, no later than the first of October in each calendar year, outlining the total expenditures from the WPF, their purposes, and an analysis of the accomplishments of the expenditures.

The state funding through the Water Project Fund has continued to leverage more than $50 million of local and or federal funding. In addition to the 10 percent severance tax

bond distribution, the WPF receives an annual distribution from the Water Trust Fund as prescribed by law. NMSA 1978, § 72-4A-8B. The Water Trust Fund was endowed with $40 million in 2006. A constitutional amendment to "Article 16 - Irrigation and Water Rights" was approved on November 7, 2011, to make the Water Trust Fund a permanent fund.

Since its inception the WTB has awarded approximately $322 million for projects statewide:

Year	Recommended Award Amounts
2002	$ 7.5 million
2003	$ 10 million
2004	$ 12.5 million
2005	$ 17.7 million
2006	$ 23.4 million
2007	$ 39 million
2008	$ 32.6 million
2009	$ 38.5 million
2010	$ 31.4 million
2011	$ 27.9 million
2012	$ 35 million
2013	$ 26.9 million
2014	$ 33 million

Estimates for water project needs in the next several decades range between $2 and $5 billion. The WTB conducts a year-long application cycle and meets mid-December to determine which projects will move forward for legislative authorization.

By Joanne Hilton, Hydrologist (2009)

Latest Update by
Darcy S. Bushnell, Esq. (2014)

2014 Water Project Fund Awards
As Approved by Water Trust Board June 9, 2014

App ID#	Entity	County	Project	Recommended WTB Funding	Recommended Scope Of Work
Endangered Species Act Collaborative Program					
542	Office of the State Engineer/ Interstate Stream Commission	Bernalillo, Socorro, Valencia, Sandoval	Middle Rio Grande ESA Habitat Restoration and Captive Propagation Facility Improvements	$450,000	Plan, Design, Construct
Flood Prevention Projects					
624	Grants, City of	Cibola	Second Street Flood Control Improvements	$700,000	Construction
587	Middle Rio Grande Conservation Dist.	Socorro	San Acacia Levee Project-Phase II	$1,500,000	Construction
542	Office of the State Engineer/ Interstate Stream Commission	Bernalillo, Socorro, Valencia, Sandoval	Middle Rio Grande ESA Habitat Restoration and Captive Propagation Facility Improvements	$450,000	Plan, Design, Construct
Watershed Restoration And Management Projects					
612	Claunch-Pinto SWCD	Bernalillo, Santa Fe, Torrance	Estancia Basin Watershed Health, Restoration and Monitoring Project	$600,000	Plan, Design, Construct
578	Canadian River SWCD	Quay	Riparian Restoration	$600,000	Plan, Design, Construct
588	Ute Creek SWCD	Harding	Riparian Restoration	$400,000	Plan, Design, Construct
618	Claunch-Pinto SWCD	Bernalillo, Rio Arriba, Santa Fe, Valencia	Riparian Restoration Project through the Greater Rio Grande Watershed Alliance	$600,000	Plan, Design, Construct
Water Conservation Or Recycling, Treatment, Or Reuse Projects					
582	Clovis, City of	Curry	Reuse Pipeline Construction	$3,200,000	Construction
548	Hobbs, City of	Lea	Effluent Reuse Project Phase II	$3,200,000	Construction
546	Los Alamos County	Los Alamos	Non-Potable Water System Priority 1 Phase 2 Projects Construction	$1,406,000	Construction
572	Deming, City of	Luna	Effluent Reuse Expansion Project	$800,356	Design, Construction
646	Chama, Village of	Rio Arriba	Chama Water Treatment Plant Improvements	$980,000	Design, Construction
Water Storage, Conveyance Or Delivery Projects					
566	ENMWUA	Curry, Quay, Roosevelt	Eastern NM Rural Water System	$3,200,000	Plan, Design, Construct
1	Las Vegas, City of	San Miguel	Bradner Enlargement	$4,000,000	Construction
554	El Creston MDWCA	San Miguel	Distribution Lines Design/Construct	$ 701,895	Plan, Design, Construct
540	Alto Lakes WSD	Lincoln	Replacement of Distribution Lines	$1,502,000	Design and Construct
561	Ruidoso, Village of	Lincoln	Grindstone Reservoir Dam Liner	$3,157,600	Design and Construct
543	Cuatro Villas MDWUA	Santa Fe	Regional Water System Phase IV	$1,156,000	Plan, Design, Construct
581	Ancones MDWCA	Rio Arriba	Ancones Water System Phase I	$ 174,074	Plan and Design
571	Eldorado Area Water & Sanitation Dist.	Santa Fe	Regional Water Supply Interconnection	$ 399,200	Plan, Design, Construct
623	Deming, City of	Luna	Water Distribution Improvements-Pear Street Revitalization Improvements Phase III	$1,017,705	Construction
592	Carlsbad, City of	Eddy	Double Eagle Water Wells	$1,500,000	Construction
566	ENMWUA	Curry, Quay, Roosevelt	Eastern NM Rural Water System	$3,200,000	Plan, Design, Construct
1	Las Vegas, City of	San Miguel	Bradner Enlargement	$4,000,000	Construction
554	El Creston MDWCA	San Miguel	Distribution Lines Design/Construct	$701,895	Plan, Design, Construct
540	Alto Lakes WSD	Lincoln	Replacement of Distribution Lines	$1,502,000	Design and Construct
561	Ruidoso, Village of	Lincoln	Grindstone Reservoir Dam Liner	$3,157,600	Design and Construct
543	Cuatro Villas MDWUA	Santa Fe	Regional Water System Phase IV	$1,156,000	Plan, Design, Construct
581	Ancones MDWCA	Rio Arriba	Ancones Water System Phase I	$174,074	Plan and Design
571	Eldorado Area Water & Sanitation Dist.	Santa Fe	Regional Water Supply Interconnection	$ 399,200	Plan, Design, Construct
623	Deming, City of	Luna	Water Distribution Improvements-Pear Street Revitalization Improvements Phase III	$1,017,705	Construction
592	Carlsbad, City of	Eddy	Double Eagle Water Wells	$1,500,000	Construction
642	Tijeras, Village of	Bernalillo	Village of Tijeras Water System	$603,500	Construction

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Jana Amacher, N.M. Finance Authority

Stefanie Beninato, Ph.D., J.D.

Brigette Buynak, Esq.

Strategic Water Reserve

"This project will make water available to the Bureau of Reclamation for environmental purposes while protecting other water rights and still allowing us to meet our compact obligations."

Estevan López, Director, Interstate Stream Commission (discussing the Lower Pecos River, 2007)

Introduction

As pressures upon New Mexico's valuable water resources have mounted over the years, specifically by the silvery minnow litigation in the middle Rio Grande and the U.S. Supreme Court Decree in the Pecos River Basin, the concept of a strategic water reserve emerged within the water community. In 2003, *Think New Mexico* issued a policy report entitled, *Rio Vivo! The Need for a Strategic River Reserve in New Mexico* and became the leader of an initiative to create a publicly held water reserve. *Think New Mexico* modeled the proposed legislation on the federal Strategic Petroleum Reserve created by Congress in 1975 in response to the oil embargo of 1973–74, and on the negotiations taking place concerning the Pecos River Compact, which resulted in a water banking plan to meet the compact needs on the Pecos River.

The Strategic Water Reserve (Reserve) established in 2005 transforms New Mexico's policies regarding river management. The Reserve is a pool of publicly held water rights dedicated to keeping New Mexico's rivers flowing to meet the needs of river-dependent endangered species and to fulfill our water delivery obligations to other states. It is a tool for New Mexico to achieve sensible and sustainable water policies by balancing water use between cities, industry, agriculture, and the rivers of the state.

History of Legislation and Funding

Representative Joe Stell (retired) and Senator Carlos Cisneros introduced legislation to create a Strategic River Reserve in the 2004 legislative session, where it was expanded to include groundwater and renamed the Strategic Water Reserve. This bill passed in the House but ran out of time as it awaited a hearing on the Senate floor in the final hours of the session. In 2005, the sponsors brought the legislation back with the unanimous endorsement of the Interim Water and Natural Resources Committee. This time, the Strategic Water Reserve legislation passed the House 58–9; the Senate 40–0. The State appropriated $2.8 million to the Reserve in 2005, $2 million in 2006, $500,000 in 2007, and $0 in 2008. In 2009, due to the state's

The Reserve is a pool of publicly held water rights dedicated to keeping New Mexico's rivers flowing to meet the needs of river-dependent endangered species and to fulfill our water delivery obligations to other states.

budget crisis the legislature de-authorized nearly $1.5 million in Reserve funding and froze approximately $600,000 of remaining funding. In 2010, the previously frozen $600,000 was de-authorized and there were no new state appropriations. There have been no state appropriations to the Reserve since 2007.

In 2009, due to the state's budget crisis the legislature de-authorized nearly $1.5 million in Reserve funding and froze approximately $600,000 of remaining funding.

What Does the Strategic Water Reserve Do?

The Reserve legislation is found in NMSA 1978, § 72-14-3.3. It allows the Interstate Stream Commission (ISC), on behalf of the State of New Mexico, to purchase or lease water or water rights from willing sellers or lessors. Water or water rights may also be received by donation of surface and underground water rights. This statute has some important provisions:

- The ISC must purchase rights that have sufficient seniority and consistent, historic beneficial use to contribute effectively to the purpose of the Reserve.
- The ISC may not acquire or sell the water or water rights at more than the appraised market value.
- The ISC may not acquire these rights from an acequia or ditch association nor from an irrigation district established under Section 73, Article 10 NMSA 1978, except through contractual agreement with the board of directors or the establishment of a special water users association.
- The ISC shall not acquire water or water rights by condemnation.
- The sale, lease, or donation of underground water rights for the SWR may only be used for the purposes of cessation of pumping or for limited short-term stream augmentation.
- Water and water rights in the Reserve shall remain within the river reach or groundwater basin of origin and cannot result in any net depletions to that basin.
- The acquisition of water or water rights for the Reserve cannot interfere with the ISC's obligation to implement the Pecos River Carlsbad Project Settlement Agreement.
- The ISC must pay the annual assessments due to conservation and irrigation districts in connection with the lease, sale, or donation of water rights to the Reserve.
- The ISC may not sell the water or water rights to the United States.

The list above captures some, but not all, of the provisions of the Strategic Water Reserve Act.

River Reach/Groundwater Basins

The ISC, in consultation with its commissioners, the Office of the State Engineer (OSE), and the Attorney General's Office, determines river reach or groundwater basin priorities. The Middle Rio Grande and the Pecos River Basin have been determined priority reach/basins every year, beginning in 2006. The Lower Pecos River was a priority reach/basin in the years of 2006, 2007, 2009 and 2013. The Lower Rio Grande was a priority reach/basin in 2008, and the Canadian River below Ute Lake was a priority reach/basin in 2006. Starting in 2011, the whole Canadian River Basin was designated as a priority basin. In 2010, the ISC—without consultation—designated the Middle Rio Grande Basin, the Lower Rio Grande Basin, and the Pecos River Basins priority river reaches.

Acquisition Status

In the Pecos Basin, the ISC has completed two water rights purchase transactions in the Fort Sumner area and has the right to consumptively use over 1,500 acre-feet of

water rights for river augmentation, that is, instream flow purposes. Consistent with the intent of the Reserve legislation, the ISC sells the water to the U.S. Bureau of Reclamation (Reclamation) for the below-described purpose. In 2010, the ISC did not pursue any acquisitions for the Pecos Basin due to staff shortages and it has not pursued any acquisitions since that time due to lack of interest from water rights owners.

In 2008, the ISC advertised to purchasing water rights in the Middle Rio Grande and received several offers from people interested in selling water rights to the ISC; however, due to the reduction of Reserve funding the ISC must scale back that effort. ISC is taking other steps to evaluate Strategic Water Reserve implementation alternatives in the Middle Rio Grande and has examined water acquisition programs initiated in other western states. In 2010, the Middle Rio Grande Bureau worked on two significant acquisitions for the Reserve. The first proposed acquisition would have involved a transfer from the Intel Corporation, a computer chip manufacturer in Rio Rancho, of 740.9 acre-feet of senior surface-water rights and $10 million dollars for use by the Reserve. This acquisition was not completed. The second acquisition involved an agreement with the village of Los Lunas for the ISC to lease 1,000 acre-feet of water rights. The ISC will initially pay $80 per acre-foot of water. The OSE approved the transfer in the summer of 2012. The lease is agreement is for 10 years with an option to extend for two additional 10-year terms.

Projects

On July 25, 2007, the ISC completed a conservation pipeline project in the Fort Sumner area of the Lower Pecos River Basin. The two-mile long pipeline delivers up to 12 cubic feet per second of water acquired for the Reserve to the Pecos River. The project adds a valuable water management option by enabling water managers to temporarily increase river flows directly above a stretch of the Pecos River that has been designated as critical habitat for the "threatened" Pecos Bluntnose Shiner pursuant to the Endangered Species Act. In addition, the water will benefit New Mexico's compact status and will satisfy elements of the Settlement Agreement in the Pecos adjudication suit. In 2012, the Pecos River Basin initiated contact with federal agencies to transfer water rights that aren't currently in use. The projects resulting from the collaboration are not yet finalized.

The project adds a valuable water management option by enabling water managers to temporarily increase river flows directly above a stretch of the Pecos River that has been designated as critical habitat for the "threatened" Pecos Bluntnose Shiner pursuant to the Endangered Species Act.

On the Rio Grande, the ISC entered into a lease agreement to lease approximately 32 acre-feet of water for the Silvery Minnow refugium (Refugium) that ISC has constructed in Los Lunas and for additional Strategic Water Reserve users in the Middle Rio Grande. In 2008, the ISC filed an application with the OSE to transfer water rights leased from the New Mexico General Services Department into the Reserve to offset depletions associated with ISC's Atrisco Habitat Restoration Project and for other Strategic Water Reserve initiatives in the Middle Rio Grande. Also in 2008, the ISC conducted listening sessions in the Middle Rio Grande to develop strategies for collaboration with stakeholders on successful implementation of the Reserve. Challenges were identified, including the expense and scarcity of water rights available for acquisition. In 2011, the ISC entered into a Memorandum of Agreement with the U.S. Army Corps of Engineers to offset depletions associated with the Refugium. In 2012, the ISC entered into an agreement with the New Mexico State Land Office to provide water for habitat restoration on Albuquerque's South Valley Rio Grande Bosque. Also in

2012, the ISC entered into an agreement with Reclamation for habitat restoration within the city of Rio Rancho for Open Space lands.

The Strategic Water Reserve is a significant tool in the active management of New Mexico's water. Ultimately, the water acquisitions will give New Mexico increased ability to balance water use between cities, industry, agriculture, and our rivers.

By Brigette Buynak, Esq. (2007)

Latest Update by Stefanie Tsosie,
University of New Mexico School of Law,
Class of 2015 (Oct. 2013)

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Contributors

Stefanie Beninato, Ph.D., J.D.

Joshua Mann, Esq.

Acknowledgments

Water Matters!

Jana Amacher
New Mexico Finance Authority

Ted Bagley, Esq.
N.M. Office of the State Engineer

Beth Bardwell
Audubon New Mexico

Peggy Barroll, Hydrologist
N.M. Office of the State Engineer

Consuelo Bokum
1000 Friends of New Mexico*

Sarah Bond, Esq.
Office of N.M. Attorney General

Angela Schackel Bordegaray
N.M. Interstate Stream Commission

Peter Chestnut, Esq.

Ellen Drew
Rural Community Assistance Corporation

Gretel Follingstad
N.M. Interstate Stream Commission

Amy Haas, General Counsel
N.M. Interstate Stream Commission

Trudy Healy, Healy Foundation

Steve Hernandez, Esq.
Steven L. Hernandez, Law Office, PC.

Joanne Hilton, Hydrologist

Heather Himmelberger
SW Environmental Finance Center

James Hogan, N.M. Environment Department
Surface Water Quality Bureau

Matthew Holmes
N.M. Rural Water Association

Celina Jones, Esq.
Administrative Office of the Courts

Kimberly Kirby, N.M. Environment Department

John Leeper, Ph.D, formerly of the Navajo Nation, Department of Water Resources

Joshua Mann
U.S. Bureau of Reclamation*

Tim Murphy
U.S. Bureau of Reclamation

Rob Pine, formerly of the N.M. Environment Department, Drinking Water Bureau

Greg Ridgley, Deputy Chief Counsel
N.M. Office of the State Engineer

Arianne Singer, Esq.,
N.M. Office of the State Engineer

DL Sanders Chief Counsel
N.M. Office of the State Engineer*

Blanca Surgeon
Rural Community Assistance Corporation

John Utton, Esq.

Scott Verhines, P.E., N.M. State Engineer*

Jerold Widdison, researcher & cartographer

Katherine Yuhas
Conservation Officer of ABCWUA

*Position held at time of contribution

Design: Charlie Kenesson, Kenesson Design, Inc.

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