Background on Selected Water Issues for Members of the 51st New Mexico State Legislature
1st Session • 2013

Acknowledging contributions of Representative Brian F. Egolf, Jr. to water matters in New Mexico
Foreword

Water Matters! is prepared for the New Mexico Legislature, and the state’s citizens and students, to provide much needed information on water issues in New Mexico. The Utton Center updates pertinent articles each year and adds to the compilation so that Water Matters! is current and relevant. Water topics often are controversial. Hence for several topics we have called upon those with expertise, but note that articles are the product of the authors and do not necessarily represent a position taken by the Utton Center or the School of Law.

We dedicate our seventh annual issue to Representative Brian Egolf for his contributions to the protection of New Mexico’s rivers and groundwater. He will join others who have been honored for their contributions to New Mexico waters: Representatives James Roger Madalena, Joe Stell, Andy Nunez and Mimi Stewart, and Senators Carlos Cisneros and Phil Griego.

This year’s full edition of Water Matters! is available on our website as a PDF document which can be printed or downloaded for future reference. Our website contains other useful information on water and natural resources; we hope you will visit it at http://uttoncenter.unm.edu/.

Denise D. Fort
Professor of Law
Director, Utton Center
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Acknowledging Representative Brian F. Egolf, Jr.

Brian Egolf: A New Generation Tackles Water, Energy and the Environment

Representative Brian Egolf (D-District 47) has addressed natural resources, water and the environment from the beginning of his legislative career. His efforts have led to his appointment as chair of the Energy and Natural Resources Committee of the House of Representatives.

Perhaps unsurprisingly, Representative Egolf’s role on the Energy and Natural Resources Committee has put him into the midst of significant controversies. The regulation of the oil and gas industry has been before an administrative agency (the Oil Conservation Commission), the judiciary (in a review of executive branch action in repealing regulations), and has been heard in Representative Egolf’s committee. He has pledged to continue to press for state regulation of the groundwater pollution associated with these operations, including an examination of fracking and its potential for groundwater pollution. Assessment of the existing groundwater quality, the composition of fracking compounds, and the integrity of casings are among elements of a regulatory structure.

Protecting rivers is another priority. New Mexico is unique in not yet protecting instream flows (environmental flows) in its rivers under state law, although it does so in some instances. Representative Egolf is considering means of increasing water left in rivers, and how the agricultural sector can be given incentives to do so.

Representative Egolf is from Santa Fe. He attended Georgetown University’s School of Foreign Service and the University of New Mexico’s School of Law, from which he graduated magna cum laude. With his wife Kelly, he and his two children live in Santa Fe, where he has a legal practice that includes natural resources and water law.

By Denise Fort, Director of Utton Center (2013)
Basic Water Law Concepts

History of New Mexico Waters: A Brief Overview

Water issues have always plagued New Mexico. Its inhabitants have struggled with how to survive in a land thirsty for water from before recorded history. As past leaders of this arid land have implemented policies and laws to distribute the precious resource of water, so will its present and future leaders wrestle with these issues.

Water law is historically based. A brief overview of the peoples who have inhabited New Mexico provides the foundations of current water law. Concepts, attitudes and the language found in today’s constitution and statutes addressing New Mexico’s water law have long-standing historical roots.

Pueblos

New Mexico’s water use rights and practices predate statehood by several centuries. Ancient canals winding throughout the modern lands of New Mexico were initially constructed in pre-recorded history. The Pueblo Indians placed water to historical, beneficial use and thus, have an early priority date to their water rights. Early settlers noted the growing of corn, beans, melons and other crops which depended upon a wide variety of irrigation methods.

Spanish Influence

For decades water primarily supported local subsistence-based economies. The governing principles came from Spanish practices, including those of certain local controls over land and water and usufruct rights (the right of use). 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 which 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.

Under both Spanish and Mexican rule, the equitable distribution of water was the most frequently contested issue. Most disputes were resolved at the local level, but provincial governors sometimes determined the outcome of

“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.”


Early settlers noted the growing of corn, beans, melons and other crops which depended upon a wide variety of irrigation methods.
During times of shortage, locally imposed interim measures allowed contending groups to share the shortage until precipitation brought increased stream flow.
“first in time, first in right,” the same principle was applied to the appropriation of water, resulting in the prior appropriation doctrine.

In a New Mexico territorial Supreme Court case in 1891, the Court specifically declared prior appropriation the law of New Mexico. In *Trambley v. Luterman*, 6 N.M. 15 (1891), the Court found that the prior appropriation of water for a grist mill on the Gallinas River takes precedence over a subsequent riparian owner’s assertion of a water right based on common law doctrine. The Court’s rejection of riparian rights in favor of prior appropriation was a precedent consistently followed in New Mexico thereafter. In 1905 the territorial assembly reduced existing practices of water use concerning appropriation of surface water to statutory form without substantial alteration. New Mexico’s system closely paralleled the appropriation doctrine developed by Anglo 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. Although lawmakers intended to protect the community acequias and other traditional institutions, after 1907 the Anglo sociocultural framework increasingly dominated water policy. Besides codifying certain rights and practices, the Legislature centralized the administration of water with the creation of the territorial engineer. This official had the authority to allocate water in various streams and approve applications for new irrigation projects.

Statehood

When New Mexico became a state in 1912, its constitution employed the principles of public ownership of water, the doctrine of prior appropriation and beneficial use – all of which were found in the 1907 Water Code. 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.

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 and building Elephant Butte Dam to serve the Rio Grande Project in 1916. Federal-state relations continue to be significant when issues surrounding New Mexico’s waters are being addressed, especially in regard to financing water infrastructure projects.

Legal Concepts: A Brief Overview

*Prior Appropriation*

Prior appropriation means that the right to water is determined by the chronological order in which claims (appropriations) to the water are made. The first person to use a quantity of water from a water source for a beneficial use has the right to continue to use that quantity of water for that 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 users. The key word is “use” and the doctrine awards a water right to a person actually using the water. The idea is that if a senior
Article 16 of the New Mexico Constitution provides that the unappropriated water of every natural stream, perennial or torrential, within New Mexico belongs to the public and is subject to appropriation for beneficial use.

water user no longer needs the water, the right to use the water can be freed up for someone else to use. In a water-short year, junior appropriators may not receive any water. An irrigation water right is appurtenant to the land and is tied to a specific use, source of the water, place of diversion, amount, and priority date. Water rights can be conveyed with real property or severed from the property and sold separately.

Pre-1907 Water Rights
After 1907, a permit from the State Engineer was required for any new appropriations of surface water. A pre-1907 water right is a right that was in existence prior to 1907. 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 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.

Beneficial Use
Fundamental to maintaining water rights under a system of priority administration is the requirement that a holder apply water rights to beneficial use. The New Mexico Constitution states that “Beneficial use shall be the basis, the measure and the limit of the right to the use of water.” (Article 16, Section 3)

The New Mexico Constitution does not further define beneficial use, but a series of judicial decisions characterize it as including irrigation, domestic, commercial and industrial uses. It does not include the wasteful use of water. There is no priority scheme by type of use for allocation of water during droughts.

Non-use is protected for certain water users by allowing certain public water providers a forty-year planning period in which they would not be subject to forfeiture for non-use.

While New Mexico is the only western state that does not statutorily recognize “instream flow” as a beneficial use, an Attorney General Opinion issued in 1998 did indicate that New Mexico law allows the State Engineer to provide legal protection for instream flows in certain circumstances.

Article 16 of the New Mexico Constitution provides that the unappropriated water of every natural stream, perennial or torrential, within New Mexico belongs to the public and is subject to appropriation for beneficial use. A property right for surface or groundwater is actually a use right to “beneficial use” of the water, not ownership of it. 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.

Appropriation
A person may appropriate unappropriated water by filing a permit application with the State Engineer. The Engineer must find that there is unappropriated water available and that approval of the application will not impair existing rights, be detrimental to the public welfare of the state, nor be contrary to water conservation. The State provisions for public welfare and conservation, although not defined, were added to the law in 1985. A water right is subject to “forfeiture” or loss of that right for failure to “use” the water right. These constitutional and statutory terms and concepts are fundamental to the State’s water laws.
Groundwater
The State did not regulate groundwater use until 1931 when the Legislature declared underground water to be public and subject to appropriation for beneficial use. In basins that are ‘declared,’ that is, areas where the State Engineer deemed it necessary to limit the unregulated and unlimited use of groundwater, the State Engineer may require permits for new groundwater appropriations, too. 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. There are currently thirty-three declared basins, covering about ninety-two percent of the state.

Priority Administration
In a system of prior appropriation, each water rights holder has a yearly quantity and an appropriation date. Each year, the user with the earliest appropriation date (known as the “senior appropriator”) may use up to the full allocation (provided the water source can supply it). Then the user with the next earliest appropriation date may use his or her full allocation and so on. In times of drought, users with junior appropriation dates might not receive their full allocation or even any water at all. Legally, shortages do not result in sharing of the resource or any diminishment of the amount the senior appropriator can take, if sufficient water is available. But historically there are many examples of shortage sharing among all users in a drought. Also, priority administration can be technically challenging. For instance, in years of low runoff it is difficult to prevent the delayed effects on senior water right holders, of pumping that has occurred in previous years by junior groundwater users.

Adjudication
The State’s statutes charge the State Engineer and the Interstate Stream Commission with the management of the State’s waters and its attendant responsibilities. A water rights adjudication produces a single decree that defines all competing demands on the stream system’s water supply so that the State Engineer can effectively carry out his statutory mandate to apportion and administer water to satisfy those demands. These adjudications result in the quantification and legal determination of surface water rights that predate the State’s adoption of the 1907 water code; the quantification and legal determination of groundwater rights that predate the State Engineer’s assertion of administrative authority over a groundwater basin; and the quantification and legal determination of the relative priorities of all water rights, both Indian and non-Indian, that share a common hydrologically connected source. These adjudications help the State define its existing water rights, meet its interstate compact obligations, and protect the State’s waters.

By Brigette Buynak, Esq. (2008)
Sources Consulted and Other Contributors


**N.M. Const.** art. XVI, § 3.

**N.M.S.A. 1978 § 72-12-1** (1931). Underground Waters.

**New Mexico State Water Plan** (2003).

**New Mexico Legislative Council Service, Water in New Mexico** (1999).


**Stephanie Beninato**, Ph.D., J.D.
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. This year, the finalized cases have been arranged by topic. The Chapter is intended to be a quick and handy reference guide, and not a thorough summary of the facts and law of each case.

Water Rights: Beneficial Use; Forfeiture; Priority; Representation

*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-01-1, 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. That authority may be derived from the governing documents of the ditch, if they so provide.


*Kaiser Steel Corp. v. W.S. Ranch Co.*, 81 NM 414 (1970). For the exercise of eminent domain, the beneficial use of

The Chapter is intended to be a quick and handy reference guide, and not a thorough summary of the facts and law of each case.
water is a public purpose. A water right holder may condemn a right-of-way in order to put water to beneficial use.

Reynolds v. South Springs Co., 80 NM 144 (1969). 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 v. Mendenhall, 68 NM 467 (1961). 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.

Impairment

Montgomery v. Lomos Altos, Inc., 2007-NMCA-015, 141 NM 239. 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, 7 NM 239 (1966). 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, 68 NM 61 (1961). 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

Tri-State Gen. & Trans. Ass’n., Inc. v. D’Antonio, 2012-NMSC-03939, _NM_. Under N.M.S.A. 1978, § 72-2-9.1 (2003), 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 has not been completed. On Nov. 1, 2012, the New Mexico Supreme Court affirmed the Legislature’s grant of authority to the State Engineer to promulgate the AWRM regulations, and to use the types of evidence listed in the regulations for determining priority. This decision overturns the Court of Appeals’ holding that the AWRM are unconstitutional and the trial court’s holding that they violate due process. The Supreme Court also held that AWRM regulations are not unconstitutionally vague.

City of Albuquerque v. Reynolds, 71 NM 428 (1963). 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 NM 320. 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 NM 80. 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, 65 NM 59 (1958). 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.”

After numerous hearings, court decisions and appeals to the 10th Circuit Court of Appeals on various issues, a decision was rendered in April 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.

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 2003 Opinion will expire in the spring of 2013. Federal and non-federal water management agencies are working to complete a new opinion, before the current one expires.

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

**Ongoing Litigation**

Bounds v. D’Antonio, 2011 NMCA 11, 149 NM 484. The domestic well statute, 1978 N.M.S.A. § 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 New Mexico Court of Appeals held that this statute is constitutional because it does not violate the priority doctrine or constitute an impermissible exception to it. The Court ruled that priority doctrine is not a system of administration, but rather a broad principle. The Court recognizes the concerns and issues created by the lack of regulation of domestic wells, but states that it is up to the Legislature and the State Engineer to create an efficient, effective, and fair administrative process to reach the required balance between permitting domestic wells and protecting senior water rights.

The New Mexico Supreme Court granted Bounds and the Farm Bureau certiorari on
the appeal. The case has been briefed, argued, and submitted for decision. As of January 29, 2013, no decision has been entered. [appealed: Bounds, et al. v. State of New Mexico, et al., NMSC No. 32,713 and New Mexico Farm & Livestock Bureau v. State of New Mexico, et al., NMSC No. 32,717.]

Carangelo v. D'Antonio, No. 26, 757, Slip Op. (N.M. Ct. App. Mar. 29, 2012). The issue in this case is whether consumption of water is required to establish a beneficial use of water. The City of Albuquerque (now Albuquerque Bernalillo County Water Utility Authority) was granted a permit to divert surface water from the Rio Grande and then return it to the river without consuming any of it.

The New Mexico Court of Appeals issued an opinion, granted a rehearing and issued a new opinion. Then it withdrew the second opinion so that the parties could file briefs for a rehearing. The briefs have been filed, but no decision has been entered as of Dec. 20, 2012.

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 United States Bureau of Reclamation over a purported change in the accounting and allocation of the water in the Rio Grande Project. In late July 2011, the Bureau 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 (EPCWID) and the Bureau of 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% of the water and EPCWID received 43%. These percentages were based on irrigated acreage in each of the districts. The Attorney General asserts that the new protocol results in 38% allocation of Rio Grande Project water for EBID and 62% for EPCWID. The districts assert that the new operating agreement takes into account groundwater withdrawals by EBID farmers as well as irrigated acreage.

For more information please see Chapter 24 Water Litigation in the Lower Rio Grande.

Augustin Plains Ranch LLC v. Verhines et al., No. 2012-CV-08. Augustin Plains Ranch LLC filed an application with the 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 Apr. 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 Nov. 2012 on the basis that specificity regarding use and place...
Updates From State Engineer Decisions—2011

*Berrendo, LLC Applications*, Hearing Nos. 09-086 through 09-090, Consolidated (November 2011). Berrendo, LLC filed five applications to change the place and purpose of groundwater use in Fort Sumner Underground Water Basin. Berrendo planned to cease diverting shallow groundwater for irrigation in the Ft. Sumner Irrigation District and to transfer the consumptive use of the irrigation water of 6,426 acre-feet a year, through a pipeline from Ft. Sumner to the Rio Grande for use in the Santa Fe area. In Feb. 2011, the State Engineer denied the applications on the grounds that they were over broad and speculative. Berrendo, LLC appealed the State Engineer’s decision in the 10th Judicial District Court, but thereafter, withdrew the appeal. The matter is now closed.

Updated by Kari Olson ‘14 and Darcy S. Bushnell, Esq. (2012)
Adjudications

Background

Adjudications are lawsuits 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 groundwater basin. By statute, the State of New Mexico 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.

Acres Adjudicated, Subfiles, and Defendants in Pending New Mexico Adjudications

Counts and Estimates as of October 2011

Courtesy of the New Mexico Office of the State Engineer

Non-Indian Subfile Summary

<table>
<thead>
<tr>
<th>Stream System</th>
<th>Total Acres</th>
<th>Adjudicated Acres</th>
<th>% Acres Adjudicated</th>
<th>Subfiles</th>
<th>Defendants</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Juan</td>
<td>37,829</td>
<td>4,347</td>
<td>11%</td>
<td>9,000</td>
<td>11,400</td>
</tr>
<tr>
<td>Jemez (decreed)</td>
<td>2,033</td>
<td>2,033</td>
<td>100%</td>
<td>1,011</td>
<td>1,095</td>
</tr>
<tr>
<td>Red River (decreed)</td>
<td>12,185</td>
<td>12,185</td>
<td>100%</td>
<td>1,202</td>
<td>1,605</td>
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<tr>
<td>Zuni</td>
<td>980</td>
<td>-</td>
<td>0%</td>
<td>950</td>
<td>1,000</td>
</tr>
<tr>
<td>Rio San Jose</td>
<td>undetermined</td>
<td></td>
<td>0%</td>
<td>1,800</td>
<td>2,000</td>
</tr>
<tr>
<td>Rio Chama</td>
<td>34,852</td>
<td>34,437</td>
<td>99%</td>
<td>3,654</td>
<td>4,630</td>
</tr>
<tr>
<td>Taos/Hondo</td>
<td>13,756</td>
<td>13,692</td>
<td>100%</td>
<td>4,026</td>
<td>5,224</td>
</tr>
<tr>
<td>Santa Cruz/Truchas</td>
<td>7,218</td>
<td>7,218</td>
<td>100%</td>
<td>3,446</td>
<td>5,139</td>
</tr>
<tr>
<td>Nambe/Pojoaque/Tesuque</td>
<td>2,755</td>
<td>2,747</td>
<td>100%</td>
<td>3,430</td>
<td>5,598</td>
</tr>
<tr>
<td>Santa Fe</td>
<td>827</td>
<td>612</td>
<td>74%</td>
<td>1,284</td>
<td>1,550</td>
</tr>
<tr>
<td>Northern NM</td>
<td>112,435</td>
<td>77,271</td>
<td>69%</td>
<td>29,803</td>
<td>39,241</td>
</tr>
</tbody>
</table>

Southern New Mexico Adjudications

<table>
<thead>
<tr>
<th>LRG Section or Underground Basin</th>
<th>Total Acres</th>
<th>Adjudicated Acres</th>
<th>% Acres Adjudicated</th>
<th>Subfiles</th>
<th>Defendants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutt Hockett</td>
<td>11,554</td>
<td>11,554</td>
<td>100%</td>
<td>43</td>
<td>73</td>
</tr>
<tr>
<td>Rincon Valley</td>
<td>21,991</td>
<td>17,180</td>
<td>78%</td>
<td>1,230</td>
<td>1,429</td>
</tr>
<tr>
<td>Northern Mesilla</td>
<td>20,013</td>
<td>3,502</td>
<td>17%</td>
<td>5,928</td>
<td>7,504</td>
</tr>
<tr>
<td>Southern Mesilla</td>
<td>54,009</td>
<td>10,134</td>
<td>19%</td>
<td>5,353</td>
<td>7,260</td>
</tr>
<tr>
<td>Outlying Areas</td>
<td>3,798</td>
<td>424</td>
<td>11%</td>
<td>1,275</td>
<td>1,798</td>
</tr>
<tr>
<td>LRG Subtotals</td>
<td>111,365</td>
<td>42,794</td>
<td>38%</td>
<td>13,829</td>
<td>18,064</td>
</tr>
<tr>
<td>Animas Underground</td>
<td>15,989</td>
<td></td>
<td>0%</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>Southern NM Subtotals</td>
<td>127,354</td>
<td>42,794</td>
<td>34%</td>
<td>14,129</td>
<td>18,564</td>
</tr>
</tbody>
</table>

Pecos Adjudication

<table>
<thead>
<tr>
<th>Pecos Section</th>
<th>Total Acres</th>
<th>Adjudicated Acres</th>
<th>% Acres Adjudicated</th>
<th>Subfiles</th>
<th>Defendants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallinas</td>
<td>8,164</td>
<td>7,200</td>
<td>88%</td>
<td>1,674</td>
<td>1,998</td>
</tr>
<tr>
<td>Upper Pecos(Ground Water)</td>
<td>695</td>
<td>677</td>
<td>97%</td>
<td>100</td>
<td>93</td>
</tr>
<tr>
<td>Upper Pecos(Surface Water)</td>
<td>undetermined</td>
<td></td>
<td>0%</td>
<td>undetermined</td>
<td>2,000</td>
</tr>
<tr>
<td>Pecos Supplement/Misc.</td>
<td>4,651</td>
<td>365</td>
<td>8%</td>
<td>49</td>
<td>100</td>
</tr>
<tr>
<td>Hondo Basin</td>
<td>6,748</td>
<td>6,739</td>
<td>98%</td>
<td>588</td>
<td>657</td>
</tr>
<tr>
<td>FSID</td>
<td>6,500</td>
<td></td>
<td>0%</td>
<td>undetermined</td>
<td>480</td>
</tr>
<tr>
<td>Fort Sumner (Ground Water)</td>
<td>7,444</td>
<td>7,444</td>
<td>100%</td>
<td>80</td>
<td>44</td>
</tr>
<tr>
<td>PVACD</td>
<td>128,274</td>
<td>123,032</td>
<td>96%</td>
<td>1,900</td>
<td>2,522</td>
</tr>
<tr>
<td>River Pumpers</td>
<td>6,063</td>
<td>6,063</td>
<td>100%</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>Carlsbad Underground</td>
<td>11,350</td>
<td>320</td>
<td>3%</td>
<td>320</td>
<td>240</td>
</tr>
<tr>
<td>Carlsbad Irrigation District</td>
<td>26,913</td>
<td>26,913</td>
<td>100%</td>
<td>1,106</td>
<td>1,328</td>
</tr>
<tr>
<td>Peñasco</td>
<td>undetermined</td>
<td></td>
<td>0%</td>
<td>undetermined</td>
<td>5,000</td>
</tr>
<tr>
<td>Pecos Subtotals</td>
<td>206,816</td>
<td>178,753</td>
<td>86%</td>
<td>5,840</td>
<td>14,484</td>
</tr>
</tbody>
</table>

ACTIVE GRAND TOTALS | 446,605 | 298,818 | 67% | 49,768 | 72,289 |

From October 2011 OSE report to the Legislative Interim Committee on Water and Natural Resources

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, 18 N.M, 681, 140 P. 1044, 1050 (1914)
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.

Currently, twelve adjudications are pending in the State of New Mexico. Below is the summary table of the active adjudications, prepared by the Office of the State Engineer (OSE).

Further information is provided in the following table, 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 5,600 non-Indian claimants, four Pueblos, one irrigation district, 3,400 subfiles and 2,750 irrigated acres; and
- the Pecos, filed in 1956, has 14,500 non-Indian claimants, one tribe, three federal and state irrigation or conservancy districts, 6,000 subfiles and 207,000 irrigated acres.

In all the 12 active adjudications, there are an estimated total of 72,300 non-Indian claimants, 18 tribes or Pueblos, 50,000 subfiles, 446,700 irrigated acres of which 67% of the acreage has been adjudicated.

**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 state attorneys and the OSE. Each adjudication is assigned a judge. Adjudication judges may also serve as district court or appellate judges. 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

<table>
<thead>
<tr>
<th>Stream System</th>
<th>Court</th>
<th>Judge</th>
<th>Date Filed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animas Valley Underground Water Basin</td>
<td>6th Judicial District</td>
<td>Judge J.C. Robinson</td>
<td>2005</td>
</tr>
<tr>
<td>Jemez (Abousleman)</td>
<td>Federal Court</td>
<td>Judge Martha Vasquez</td>
<td>1983</td>
</tr>
<tr>
<td>Lower Rio Grande</td>
<td>3rd Judicial District</td>
<td>Judge James Wechsler</td>
<td>1985</td>
</tr>
<tr>
<td>Nambe/Pojoaque/Tesuque (Aamodt)</td>
<td>Federal Court</td>
<td>Judge Martha Vasquez</td>
<td>1966</td>
</tr>
<tr>
<td>Pecos River (Lewis)</td>
<td>5th Judicial District</td>
<td>Judge James Wechsler</td>
<td>1956</td>
</tr>
<tr>
<td>Rio Chama (Aragon)</td>
<td>Federal Court</td>
<td>Judge Martha Vasquez</td>
<td>1969</td>
</tr>
<tr>
<td>Rio San Jose (Kerr McGee)</td>
<td>13th Judicial District</td>
<td>Judge James Wechsler</td>
<td>1983</td>
</tr>
<tr>
<td>San Juan</td>
<td>11th Judicial District</td>
<td>Judge James Wechsler</td>
<td>1975</td>
</tr>
<tr>
<td>Santa Cruz/Truchas (Abbott)</td>
<td>Federal Court</td>
<td>Judge Martha Vasquez</td>
<td>1968</td>
</tr>
<tr>
<td>Santa Fe River (Anaya)</td>
<td>1st Judicial District</td>
<td>Judge James Wechsler</td>
<td>1971/74</td>
</tr>
<tr>
<td>Taos/Hondo (Abeyta)</td>
<td>Federal Court</td>
<td>Judge Martha Vasquez</td>
<td>1969</td>
</tr>
<tr>
<td>Zuni (A&amp;R)</td>
<td>Federal Court</td>
<td>Judge Martha Vasquez</td>
<td>2001</td>
</tr>
</tbody>
</table>
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, 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.

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 team makes 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.
New Mexico Adjudication Process

**Stage I: Adjudication Preparation Process**
Deliverable: Filed Complaint & Filed Procedural and Scheduling Order
Staff: OSE Legal Staff, Private Attorneys, & Special Master

**Stage II: Hydrographic Survey Process**
Deliverable: Filed Hydrographic Survey Report
Staff: OSE - Data Manager, Hydrographic Survey Staff

**Stage III: Joinder Process**
Deliverable: All Claimants Joined
Staff: OSE - Data Manager, & Legal Staff
       Court - Data Manager, Judge & Special Master

**Stage IV: Adjudication of Individual Water Rights Process**
Deliverable: All Individual Subfile Orders Entered
Staff: OSE - Data Manager, Hydrographic Survey Staff, & Legal Staff
       Court - Data Manager, Judge & Special Master

**Stage V: Errors & Omissions Process (Claimant Request)**
Deliverable: Necessary Subfile Pleadings Entered to Resolve Errors & Omissions
Staff: OSE - Data Manager, Hydrographic Survey Staff, & Legal Staff
       Court - Data Manager, Judge & Special Master

**Stage VI: Court Quality Assurance/Quality Control Process**
Deliverable: Accurate and Internally Consistent Adjudication Data Set
Staff: OSE - Data Manager, Hydrographic Survey Staff, & Legal Staff
       Court - Data Manager, Judge & Special Master

**Stage VII: Inter Se Process for Specific Hydrographic Survey Section**
Deliverable: Proposed Final Decree Generated, Distributed, Objections Filed, and Final Rulings Made
Staff: OSE - Data Manager & Legal Staff
       Court - Data Manager, Judge & Special Master

**Stage VIII: Preparation & Entry of Partial Final Decree Process**
Deliverable: Partial Final Decree Entered
Staff: OSE - Data Manager & Legal Staff
       Court - Data Manager, Judge & Special Master

Individual survey sections are on hold while waiting for all individual survey sections to be ready for Comprehensive Inter Se

**Stage IX: Comprehensive Inter Se Process**
Deliverable: Proposed Final Decree Generated, Distributed, Objections Filed, and Final Rulings Made
Staff: OSE - Data Manager & Legal Staff
       Court - Data Manager, Judge & Special Master

**Stage X: Preparation & Entry of Final Decree Process**
Deliverable: Final Decree Entered
Staff: OSE - Data Manager & Legal Staff
       Court - Data Manager, Judge & Special Master

Courtesy of the Administrative Office of the Courts
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 a consent order is a major step for each defendant/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.

**Global Issues Phase**

Global 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. Global issues can involve matters such as the priority date for the participants 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 when any defendant may challenge the water rights of any other defendant. 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, the Jicarilla Apache Tribe’s water rights to the Rio Chama were resolved before all the non-Indian rights had been determined. In order to complete this part of the adjudication, thus preserving it from the challenges of time, the Court conducted an expedited *inter se* and thereafter entered a partial final decree.

**Partial Final Decrees & 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.

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

**Expediting the Process**

Water rights adjudications throughout the West take decades to complete. Over the last ten years, the New Mexico courts 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 \textit{inter se} proceedings; an annual joint working session; \textit{ex parte} contacts between the state and the court on procedurals matters; general problems of administration; and excusal or recusal of a water judge. These rules are in use today.

\textbf{Joe M Stell Water Ombudsman Program}

The Ombudsman Program provides information to \textit{pro se} claimants (water rights claimants not represented by counsel) 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 helplines, 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.

\textbf{Water and Natural Resources Committee}

The 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 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 objection to the state’s offer of judgment and requiring other claimants to raise any objections during that same time 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.

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) greater decision-making role for local authorities where possible will help; and 5) a neutral state-funded entity to provide objective data, education, and assistance is strongly desired.

By Brigette Buynak, Esq.
Updated & revised by Darcy Bushnell, Esq. (2010-2011)
Sources Consulted and Other Contributors

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**CLE International, Water Law, Stream Adjudications & the New Water Judges (Aug. 16-17, 2004).**

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**N.M.S.A. 1978 § 72-2-9 (1907). Supervising apportionment of waters.**

**N.M.S.A. 1978 § 72-4-15 (1907). Determination of water rights.**

**N.M.S.A. 1978 § 72-4-19 (1907). Adjudication of rights.**

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**New Mexico Office of the State Engineer, Quarterly Report By the Office of the State Engineer on the Efforts of the AOC/OSE Working Group on Adjudications (October 24, 2008).**

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**State ex rel. Reynolds v. Pecos Valley Artesian Conservancy Dist., 99 N.M. 699 (1983).**

**Snow v. Abalos, 18 N.M. 681 (1914).**

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Northern New Mexico Bureau: [http://www.ose.state.nm.us/PDF/Legal/AdjudicationsResourceAllocation/NNM%20Rule%2071.3%20Report%20FINAL.pdf](http://www.ose.state.nm.us/PDF/Legal/AdjudicationsResourceAllocation/NNM%20Rule%2071.3%20Report%20FINAL.pdf).

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. It pledged that “property of every kind” would be “inviolably respected” by the United States (Article VIII).

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, that exerted local control over water and developed customs among themselves for equitable allocation, ceased to be the only appropriators of surface water.

“Anglo” newcomers in the last half of the 19th century challenged these arrangements, viewing as primitive the local peoples’ ecological adaptations to the arid land. Instead, they embodied an ethic based on America’s “manifest destiny,” 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. After 1879, furthermore, they arrived in droves by railroad, so that in the next thirty 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 mechanisms – 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 professor G. Emlen Hall summarized the post-1914 state of affairs as follows:

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 early years of the 20th century.

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” (N.M.S.A. 1978 Chapter 73, Articles 2 and 3). The designation of acequias as “political subdivisions of the state” restricted their autonomy (N.M.S.A. 1978 § 73-2-28). 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 and mayordomo. (N.M.S.A. 1978 §§ 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” forms the foundation of New Mexico’s water law, however, 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. Chapter 72 states that local or community rules and customs “shall not be molested or changed.” In addition, if the custom of an acequia predates the Treaty of Guadalupe Hidalgo, the custom falls within the protection of the Treaty. N.M.S.A. 1978 72-4-19 states that adjudication decrees shall also include “such other conditions as may be necessary to define the right and its priority.” Finally, the State Constitution, at Art. XVI, Sec. 1 states: “All existing rights to the use of any waters in this state for any useful or beneficial purpose are hereby recognized and confirmed.”

As political subdivisions of the state, acequias also have standing to protest any water right transfer application (N.M.S.A. 1978 § 72-5-5). This provision includes the right of an acequia to protest a transfer application by a parciante of that acequia (because the transfer could affect the hydraulic viability – or the corporate integrity – of the acequia itself). It also allows an acequia to protest an application elsewhere in the state, which, if granted, might undermine the stability of the acequia institution.

Since passage of the water conservation and public welfare statute in 1985 (N.M.S.A. § 72-5-23), individual acequias and associations of acequias have been able to exercise their right to protest a number of water transfer applications they believed would produce negative public welfare impacts should the transfers be approved. 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.

Since 1987, in addition, acequias themselves have been recognized to have the power to acquire water rights from parciantes, to transfer them, and to protect them from loss for nonuse. This provision (N.M.S.A. § 73-2-22.1) enables an acequia to keep water rights in the community by acting as a local “water bank.” To a limited degree then, this provision shifts the concept of parciante ownership of water rights back to the older concept of communal ownership.

In 2003, the New Mexico Legislature further strengthened the acequias’ power to acquire water rights by enacting N.M.S.A. § 73-2-55.1. This section codifies the acequia’s power to reallocate water temporarily to a water bank to augment the acequia system when that water isn’t being put to beneficial use. Water is not subject to loss for non-use, and the water bank is not subject to recognition or approval by the State Engineer. Hence the water is not subject to appropriation by other parties, as long as no change in the point of diversion or a change of purpose of use has occurred.

In 2009, the Legislature afforded acequias yet another statutory protection of their water rights. By amending N.M.S.A. §§ 3-27-1 to 3-27-3, the Legislature prohibited municipalities from condemning acequia water rights in satisfying their 40-year growth plans. The statute also specifically prohibits municipal condemnation of water sources used by, stored by, or water rights owned or served by a community ditch, irrigation district, conservancy district or political subdivision of the state.
owned or served by a community ditch, irrigation district, conservancy district or political subdivision of the state.

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.

The original Aamodt settlement agreement for the Pojoaque Creek watershed (involving the pueblos of San Ildefonso, Pojoaque, Nambé, and Tesuque) was initially released and presented to the public in 2004. Non-Pueblo water users expressed their concerns, and a revised settlement agreement took these interests into account and was presented to the court in 2006. In the new agreement, existing acequia rights are entitled to protection from priority enforcement of Pueblo users’ senior future uses. The Pueblo water users agreed to limit priority enforcement to their existing uses. The court has approved quantification of water rights to surface water for individual tracts and is now working on determining priority of the many acequias.

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 Río Hondo river basins initiated settlement discussions in 1989. The resulting draft agreement, released in 2006, is predicated on extensive technical research that provided hydrologic information upon which practical water sharing is to be based. In this case, Taos Pueblo will exercise its aboriginal water rights over time, but the settlement provides mechanisms for the Pueblo to offset its uses as they increase – acre by acre – including 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.

As the time draws nearer for the State 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 seek to learn what their rights might be independently of the MRGCD.

As the time draws nearer for the State 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 seek to learn what their rights might be independently 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, perhaps, is whether the acequias were properly compensated after notice and hearing when the MRGCD was formed.

Meanwhile, the potential for loss of acequia water rights through market transfers has increased as development pressure threatens to take land out of agricultural production, especially in recent years. When water is transferred out of an acequia system, the system may no longer function. To address this concern, the Legislature in 2003 enacted N.M.S.A. 1978 §§ 73-2-21, 73-3-4.1 and 72-5-24.1, creating a way for acequias to prevent water right transfers out of the system when such transfer will harm the acequia or its members.
Acequias

Under these sections, an acequia may incorporate language into its bylaws that gives it decision-making authority over proposed transfers of acequia water rights. If acequia commissioners find that a transfer would be detrimental to the acequia or community ditch or its members, it may deny a proposed transfer. Furthermore, under the new statute, the State Engineer must honor the decision of the commissioners. That is to say, the Office of the State Engineer may not approve an application for a transfer into or out of the acequia unless it receives documentation that the acequia commission has approved the transfer. The commissioners of the acequia have 120 days to make a determination. If, however, an acequia’s bylaws do not address proposed transfers, then the transfer process will be within the purview of the State Engineer, just as with transfers not involving acequias.

Despite the clarity of the new statute, challenges have called into question the power of acequia commissions over the water rights they govern. The first test of the statute was a suit asking whether the deferential standard of review afforded the district court over an acequia commission’s decision violated either of two clauses of 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 before the court of appeals, *Pena Blanca Partnership v. San Jose de Hernandez Community Ditch*, involved appeals to the district court from decisions of

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 acequia numbers 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 the numbers increased rapidly – so it appears – 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.
two different acequias. In one case, the commissioners of the San José de Hernández 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 commissioners’ decision neither violated the Constitution’s article XVI, section 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 the equal protection clause of article II, section 18. The court first reasoned that the Legislature, in N.M.S.A. 1978 § 73-2-21(E), did provide another procedure for appealing the decisions of acequia commissioners – appeal to district court – and therefore did not provide water rights owners a de novo appeal pursuant to article XVI, section 5.

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, which usually applies to general social and economic legislation such as N.M.S.A. 1978 § 73-2-21(E), 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 the acequia system.

Other Acequia Concerns

Tort/Contract Immunity. Acequias and their officers have tort immunity. As political subdivisions of the State, acequias fall within the protection of New Mexico statutes at N.M.S.A. 1978 § 37-1-23, 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. They may request insurance and self-insurance coverage from the Risk Management Division of the General Services Department.

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 N.M.S.A. 1978 § 73-2-5 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.

Acequia Commission. In 1987, the Governor created an Acequia Commission. This Commission advises the Governor and the Interstate Stream Commission, 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 by statute Section N.M.S.A. § 73-2-65. It is attached to the Department of Finance and Administration.

Liaison at the State Engineer’s Office. Within the 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 has also worked in the Mimbres basin with a community liaison there whose focus is the broader water community, which includes municipalities and other entities. The OSE Liaison has also worked extensively in the Taos and Santa Cruz adjudications with

Within the OSE there is an Acequia Liaison who assists acequias and parciantes with their water rights in adjudications.
lesser involvement in the Jemez, Aamodt, and Red River adjudications. The Acequia Liaison may assist acequias with water allocation issues and governance questions. The Liaison works with the Interstate Stream Commission, the Water Resources Allocation Program and the New Mexico Acequia Commission, as well as with the 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.

Acequia Rehabilitation Programs. Acequias may be provided with operational and maintenance assistance by certain state and federal funding programs. The OSE/ISC, working in cooperation with the Army Corps of Engineers, is working on a computerized database to include information on all functioning acequia systems. This is envisioned as an “Acequia Geographic Information System” (AGIS), which would be a web-based, shared repository for acequia information. The system would be used for management, preservation, and engineering activities related to acequias and their associated communities. Limited funding, however, has resulted in slow progress.

Technical Assistance. 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 State Engineer’s Office as the primary grant source. Technical assistance involves planning, design, engineering and supervision of construction projects.

Acequia Project Fund. This 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 will 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.

ISC Loans. The costs that an acequia needs to put forward for a construction or rehabilitation project may be covered by a loan from the Interstate Stream Commission. The loans are funded from the Irrigation Works Construction Fund (IWCF). This funding is provided by the Legislature on an annual basis.

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 recent legislation to protect the acequias.

But 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, 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 (2007–2008)


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Indian Water Rights

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 either because of their early priority dates or 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 involved all water rights in a stream system and may be conducted in state or federal court. In 1952, Congress passed the McCarran Amendment, 43 U.S.C. § 666 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 entity. Since the water rights are addressed according to the watershed in which they are located, pueblos and tribes may have to pursue their water rights in more than one adjudication. Pueblos and tribes in New Mexico assert aboriginal and federal reserved water rights claims, which are not subject to rules of beneficial use, forfeiture or abandonment, and state law-based claims which are subject to the same rules as non-Indians’ 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 more junior priorities until the supply runs out. Shortages may be brought on by variable weather, increased populations, Pueblos and tribes in New Mexico assert aboriginal and federal reserved water rights claims, which are not subject to rules of beneficial use, forfeiture or abandonment, and state law-based claims which are subject to the same rules as non-Indians’ 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, Essay in Natural Resources Journal, Vol. 34, Fall 1994
early snow melt, over-appropriation, and increased demands per capita. This water management system is commonly applied across the West and in New Mexico as well.

Basis for Water Rights
In New Mexico as in most of the West, all water rights, except those held by tribes and pueblos, 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 by the United States Supreme Court in the case Winters v. U.S., 207 U.S. 564 (1908) involving non-Indian irrigators and Gros Ventre and Assiniboine Indians on the Fort Belknap Reservation over water in the Milk River of Montana. The non-Indians argued that since water was not mentioned in the document creating the Reservation, no water rights should be accorded to it and its inhabitants. The United States Supreme Court rejected that position, deciding 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.

Priority
The elements for Indian water rights are determined using federal law. Tribal 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.

Quantification
Under state law, water right quantification for non-Indians is relatively straight forward. The method of quantification depends on the purpose to which the water right is applied. The measure is beneficial use for that purpose. 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.

PIA Standard: In the case of agricultural reservations, the Supreme Court case of Arizona v. California, 373 U.S. 546 (1963), announced that water quantification would be based on “Practicably Irrigable Acreage” (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, to serve the current as well as future agricultural needs of the Indians. PIA claims have been litigated in New Mexico for the Mescalero Apache Nation in State ex. rel. Reynolds and Pecos Valley Artesian Conservation District v. L.T. Lewis, et al.

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
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. Therefore, once known and in times of shortage, these rights will have to be satisfied in priority, often first, under the prior appropriation water management system.

Over the last century, non-Indian development burgeoned as the 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 and the demands upon them 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 (State Water Plan 2003). The emerging nature of the law in this area, the stakes and the amounts of time, resources and money make accomplishing this task very challenging.

Government-to-Government Relations

Indian 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.

Settlements

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 San Juan River adjudication; Taos Pueblo in the Abeyta adjudication of the Rio Hondo and Rio Pueblo de Taos stream systems; and Pojoaque, San Ildefonso, Nambe and Tesuque Pueblos in the Aamodt adjudication of the Nambe, Pojoaque and Tesuque stream systems. Between 2009 and 2010 these settlements were approved in Congressional Acts. A link to copies of these settlements is found at the end of this document. The Pueblos of Jemez, Santa Ana and Zia are presently engaged in negotiation talks and the court in NM v. Abbott for the Santa Cruz/Truchas watersheds is considering whether to allow settlement talks for Ohkay Owingeh (San Juan Pueblo).

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 $1,289,604 billion. The state contribution will be $130,040 million to which credits may be applied. The local contributions will total $93,200 million. The overall cost of the three settlements will be $1,513, 844 billion. For more information see link for 2011 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.

The Claims Resolution Act of 2010 approved the Taos Settlement, as well as the Nambe, 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: In 2007, the State Legislature appropriated $10 million to the Indian Water Rights Settlement Fund, a fund established for the State to pay its share in Indian water rights settlements. In 2009, the State Legislature removed that $10 million and replaced it with State Treasury Bond authorization in the same amount. On June 7, 2011, the Interstate Stream Commission certified the sale of the bonds to the Board of Finance. In the 2010 special session, the Legislature appropriated an additional $15 million. The total amount required from the State by the three
Settlements will require continued annual appropriations of $15 million through 2017. For more detail on the three settlements, see this issue of *Water Matters!*, in the articles on the Navajo-Gallup Water Supply Project, *Aamodt* Adjudication, and Taos Settlement.)

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. Failure means a return to litigation.

**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 substantially 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 which are being implemented; three pueblos are in settlement talks; seven others are in litigation and, four 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
Updated by Susuan Kelly, Esq. (2010)
Revised by Darcy Bushnell, Esq. (2011)
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State and Regional Water Planning in New Mexico

State Water Planning

A state-wide water planning effort was initiated by the New Mexico Legislature in the 2003 Legislative session. The Interstate Stream Commission (ISC), in collaboration with the Office of the State Engineer 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 1983.1

The State Water Plan Act of 2003 (the 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 timeframe. 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, re-use, 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.

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 to be improved 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 concerned the implications of the change of use of water occurring in New Mexico: water that was once used for rural/agricultural purposes is now being used in urban areas. The growth of urban areas and how they use water affects the future of the State. Urban planning of our cities needs to occur so that New Mexico can grow in sustainable ways without decimating its rural areas.

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 Office of the State Engineer, 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 Office of the State Engineer 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 Office of the State Engineer 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 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.

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...
Sixteen Water Planning Regions with Rivers and Counties

By C. Kenesson for the Utton Transboundary Resources Center with information provided by Gretel Follingstad, ISC
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) began in 2006. The three regions are all part of one accounting area under the Rio Grande Compact (between Otowi gage and Elephant Butte), but the boundaries for 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 New Mexico 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.

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?

**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.

The New Mexico Water Dialogue, a state-wide grass roots organization that has been instrumental in initiating and supporting regional water planning, is working with the ISC to develop a new template.

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 state-wide grass roots organization that has been instrumental in initiating and supporting regional water planning, is working with the ISC to develop a new template.

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 County of Taos revisited this issue and settled on a new approach. By Taos County ordinance, they 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 like a basin” 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
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 on-going 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 state-wide 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 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.

**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 [Name]...
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.”

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.

Conclusion

In order for New Mexico to best manage its water resources, the State needs to invest in an on-going 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, Esq. (2008)

Updated by Joanne Hilton, Hydrologist and Susan Kelly, Esq. (2009)

Updated by Susan Kelly, Esq. (2010)

Updated by Adrian Oglesby, Esq. (2011)

Sources Consulted and Other Contributors


N.M.S.A. 1978 §§ 72-1-43 and 72-1-44. Regional water planning.


New Mexico Water Dialogue, meeting regarding regional planning, Sevilleta Refuge (September 16, 2010).


Angela Schackel Bordegaray, Interstate Stream Commission.

Phil Ogle, Supervisor of River Basin Planning, Wyoming.
Water Conservation in New Mexico

New Mexico always has had periods of water shortages, some far more long-lasting and devastating than others. As the state’s population and water demand continue to increase, the likelihood that water shortages will occur with greater frequency and cause significant economic and environmental harm will increase as well 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: we can find new water sources, or we can 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, pumping groundwater over long distances, desalination, and other means. Continuing this search for the remaining unclaimed water sources will be more expensive, energy intensive, and environmentally challenging than before.

Reducing water use – conserving water – 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 relatively inexpensive. Thus water conservation can go a long way toward ensuring that a community has enough water to meet demand.

This seemingly obvious goal of reducing water use is complicated by the “use it or lose it” doctrine of western water law and many complex hydrologic challenges, particularly in the agricultural sector of water use.

“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.”

Current Statutes – History

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

In 1983, New Mexico’s statutory prohibition against out-of-state transportation of ground water was declared unconstitutional. The court in *City of El Paso v. Reynolds*, applied the U.S. Supreme Court’s holding in *Sporhase v. Nebraska ex rel. Douglas* that a Nebraska statute prohibiting withdrawal and transportation of Nebraska’s water by another state 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 to protect the health and well-being of its citizens as long as that right does not rely primarily on economic concerns.

In 1985 in response to the court’s 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

### Legislative History of Water Conservation Statutes

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1985</td>
<td>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.” N.M.S.A. §§ 72-5-5, 72-5-6, 72-5-7, 72-5-23, 72-12-3, and 72-12-7.</td>
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<tr>
<td>1987</td>
<td>A new statute was enacted to provide standing for those asserting legitimate concerns “involving public welfare and conservation of water.” N.M.S.A. § 72-5-5.1.</td>
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<tr>
<td>1989</td>
<td>The forfeiture statutes were amended to add subsections that provided an exception from the forfeiture statute for water rights placed in a state engineer-approved water conservation program by conservancy districts, acequia or community ditch association or irrigation district. N.M.S.A. §§ 72-5-28 and 72-12-8.</td>
</tr>
<tr>
<td>1991</td>
<td>The Subdivision Act was amended to include a requirement that county boards of supervisors adopt regulations setting forth requirements for water conservation. N.M.S.A. § 47-6-9.</td>
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<tr>
<td>1995</td>
<td>The Subdivision Act was amended to include a requirement that county boards of supervisors adopt regulations setting forth requirements for water conservation. N.M.S.A. § 47-6-9.</td>
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<tr>
<td>1999</td>
<td>The Ground Water Storage and Recovery Act was enacted to promote the conservation of water within the state by recharging aquifers. N.M.S.A. §§ 72-5A-1 et seq.</td>
</tr>
<tr>
<td>2003</td>
<td>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.” N.M.S.A. § 72-6-5</td>
</tr>
<tr>
<td>2004</td>
<td>The Water Project Finance Act added water conservation projects as qualifying projects for applicants seeking grants or loans from the Water Trust Board. N.M.S.A. § 72-4A-1 et seq.</td>
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</table>
“contrary to the conservation of water within the state.” Significantly, these criteria apply to all new appropriations and transfers, not just to interstate transactions.

Two years later, in 1987 – also 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 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 subsequent years that the Legislature began to amend or create new statutes to:

- 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; and
- authorize grey water reuse.

The State Water Plan Act included a requirement 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.” N.M.S.A. §§ 72-14-3.1 *et seq.*

A water planning statute was enacted to provide that covered entities (municipalities, counties and water suppliers which provide 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 covered entity’s plan consider adoption of codes and ordinances to encourage water conservation measures and drought contingency planning. N.M.S.A. §§ 72-14-3.2 and 4-37-9.1.

The Water Quality Act was amended to allow up to 250 gallons of gray water a day to be used on residential landscaping. N.M.S.A. § 74-6-4.

The statute regarding irrigation water was amended to clarify that “[I]mproved irrigation methods resulting in conservation of water shall not affect an owner’s water rights or quantity of appurtenant acreage.” N.M.S.A. § 72-5-18.

The Water Quality Act was further amended to add language that would enable the state engineer to approve a water rights transfer (a change in the point of diversion or place or purpose of use) of the quantity of conserved agricultural water resulting from improved irrigation or agricultural practices, provided that the conservation has not resulted in impairment to existing water rights. N.M.S.A. § 72-5-18.

A new statute authorized municipalities and counties to require that site development standards encourage conservation of water. N.M.S.A. § 3-53-2.1.

2007

The statute regarding irrigation water was further amended to add language that would enable the state engineer to approve a water rights transfer (a change in the point of diversion or place or purpose of use) of the quantity of conserved agricultural water resulting from improved irrigation or agricultural practices, provided that the conservation has not resulted in impairment to existing water rights. N.M.S.A. § 72-5-18.
The ABC’s of Water Use and Conservation

There are several distinctions between different forms of water use that impact whether or not water is considered to have been conserved. The following discusses some of those distinctions.

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

*Consumptive* water use means that after the water is used, it is no longer available. Most often consumptive use of water occurs 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 moist soils (whether due to precipitation or irrigation). The loss of water from the system is also called a *depletion*.

Water that has been *diverted* 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. 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 underground aquifer.

Agricultural water rights are divided into several components. The *consumptive irrigation requirement* (CIR) is the amount consumed by the plant and the amounts evaporated from the plants or the soil surfaces near the plant. The consumptive use is the only element of a water right that can be sold or leased for non-agricultural uses.

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 are recognized in municipal, commercial, industrial agricultural, riparian and open water environments. Of these, municipal conservation is the most discussed and easily implemented. Ways to conserve water in agriculture are less understood, less easily implemented, 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. The New Mexico population as counted in the 2000 census was 1,819,046. A recent population projection by the Bureau of Business and Economic Research estimates that there will be 2,540,145 people in New Mexico in 2020 and 3,710,875 in 2060. The fastest growing regions are those in and around the major urban centers particularly in the middle and lower Rio Grande regions.
Water Conservation in New Mexico

Residential municipal water use is divided into two components: indoor use and water used outside for landscaping. Most water used indoors is not “consumed” but flows into waste water treatment systems and is reused, returns to a river, or recharges groundwater. Indoor use is concentrated in the bathroom. In particular, water use by older toilets is typically 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. In addition, many communities are changing their rate structures to tiered or block rates, charging customers more for excessive use, in order to encourage water conservation.

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 19 percent in Tucson, Arizona to 51 percent in Las Vegas, Nevada. The percentage in Albuquerque is 27 percent. Water conserving landscapes can save significant amounts of water. Savings can be accomplished by landscaping design and plant selection, and watering practices. In some areas, studies have shown savings ranging from 42 to 57 percent. These savings are significant, because water for urban landscaping is usually completely lost to the system.

Water withdrawals by industrial and commercial entities – generally in urban areas – totals less than two percent of total water withdrawn. Both uses of water and conservation opportunities vary widely. There have been important conservation efforts in these sectors as well.

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. The results from the City of Santa Fe’s toilet retrofit program have been dramatic; it has stabilized the city’s water production at amounts less than 10,500 acre-feet per year from 2004 to the present despite an annual growth rate of 1.7 percent. In addition, Santa Fe’s gallons per capita per day (gpcd) use has dropped from 168 gpcp in 1995 to 100 gpcd in 2009. Albuquerque began its water conservation effort in 1995 when its water use was 252 gpcd; by 2009, that number had been reduced to 159 gpcd.

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 amendments requiring that usage not be contrary to water conservation). Finally, based on 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 Office of the State Engineer developed a standardized method for calculating gallons per capita per day. 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 aid in planning and projecting future per capita needs.
Agricultural Water Conservation

In 2008, the Office of the State Engineer quantified the amount of water withdrawn 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 in New Mexico, one might expect that significant resources would have been committed to agricultural water conservation. Efforts to promote agricultural water conservation legislatively, however, have so far not been seen as effective.

As the adequacy of New Mexico’s water supply emerged as a concern, considerable attention was focused initially on the state’s forfeiture statutes also known as “use it or lose it” which created a disincentive to save water.

As the adequacy of New Mexico’s water supply emerged as a concern, considerable attention was focused initially on the state’s forfeiture statutes also known as “use it or lose it” which created a disincentive to save water. New Mexico’s constitution and water code base a water right on the beneficial use of that water. 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 that water for at least four years, the water right is subject to forfeiture. Abandonment may also occur, but requires a longer period of non-use and proof of an intention to abandon the water right. In either case, there has been a legal disincentive to save or conserve water.

Municipal demand is increasing and most cities or private utilities serving residential needs are trying to find ways to meet demand, so the “use it or lose it” provisions are not so problematic. Moreover, there is a statute that provides protection for a 40-year period for municipal water rights that are obtained to meet future needs provided they have an approved water development plan.

In the agricultural sector, the “use it or lose it” doctrine creates some 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 from forfeiture for water in approved conservation programs; to date, no conservation program has been approved pursuant to these legislative changes. In 2003, an additional amendment was made to the statute governing amounts allowed for agricultural water use to provide 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. As of yet, there have been no applications to approve any transfer of water pursuant to this provision, in large part because of the findings of recent studies.

A House Joint Memorial in 2009 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 Office of the State Engineer and others had been saying for some time.

The concern is that if “conserved” water was not being “consumed” previously, and then is transferred to a new consumptive use, the overall consumptive use (or depletion of a stream) is increased. Consequently, New Mexico has yet to implement active agricultural water conservation programs that would free up water for other uses.

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 may be important to people who live nearby and ditches in many old acequia systems support cottonwood stands and wetlands that few want to lose.

The state has worked with the agricultural community to develop a list of conservation measures such as laser leveling of fields, drip irrigation, more effective head gates, etc., and there is 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 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 persuasively 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.

Water Conservation Issues

At least since 1976 when the “New Mexico Water Resources Assessment for Planning Purposes” was issued, the assumption was that increased needs for municipal, industrial, and other uses would be met by the retirement of irrigated agriculture. Indeed, it has been common for state engineers to say that a reduction of 10 percent of agricultural water use would be enough to meet the growing demands of cities and, 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 growing concern about 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, at least for the middle Rio Grande.

Ag to Urban in the Middle Rio Grande

There are currently permits for about 230,000 acre-feet per year of groundwater pumping in the middle Rio Grande valley that require offset of the impacts of the pumping on the surface water in the Rio Grande. Offsets can and are made using 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 amount of pumping, but in general, the amount of the required offsets will increase over the long-term as groundwater pumping increases. Assuming that the full 230,000 acre-feet will be pumped in the future (current pumping under the permits is on the order of 110,000 acre-feet per year and temporarily dropping as the Albuquerque Bernalillo County Water Utility Authority goes to full operation of its surface water treatment plant) and assuming that the required offset, when it is needed, will consist of a combination of about 50 percent return flow credits and 50 percent purchased pre-1907 water rights; then, approximately 55,000 acres of pre-1907 water right lands would need to be fallowed. Given that the total amount of irrigated land within the Middle Rio Grande Conservancy District, the primary source area for pre-1907 water rights in the middle valley, is between 50,000 and 65,000 acres; only about 10,000 acres of the current land being farmed would be left with water rights. That assumes all the currently irrigated MRGCD lands are pre-1907 water rights lands which we know is not true. In any case, the character of the middle Rio Grande valley would be significantly different than exists today.

It should be emphasized that the above hypothetical analysis is only for the middle Rio Grande and that vested rights and imported water will likely provide a portion of the required future offsets. Nonetheless, the analysis provides insight into the types of land use changes that will occur in the future. Additionally, senior surface water rights that are being transferred in the upper Rio Grande and Lower Rio Grande are not part of the analysis.
Municipal water conservation is making a difference. Larger utilities can afford to make an investment in conservation measures. But municipal water conservation is more problematic in small rural communities because they have fewer resources. Conservation efforts cost money, although they are almost always cheaper than purchasing or otherwise accessing new water supplies.

Many communities rely on groundwater, and water tables are falling, 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 any groundwater at all. 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.

Finding enough water is getting harder, making conservation a more desirable and necessary option. Conservation of water results in more water available into the future.

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 has no way of knowing if the gap between supply and demand is a threat in the near future or not for several decades, nor can a community justify the costs of promoting conservation without an adequate showing of the benefits. Moreover, to protect conserved water, that water must be measured.

A small amount of funding to the Office of the State Engineer’s Water Use and Conservation Bureau would go a long way: for design of research on the best avenues for conservation, providing conservation information to the public, and developing model conservation ordinances. The Water Use and Conservation Bureau could more effectively develop and help implement the conservation component of the state water plan, providing assistance to small communities with minimal staff and resources.

Agricultural water conservation remains elusive. The Office of the State Engineer has cautioned that allowing practices that some see as viable water conservation efforts, but which could, without adequate measuring and monitoring, reduce the amounts available to meet the needs of senior water rights owners, interstate stream compact delivery requirements and endangered species. New Mexico must resolve whether or not agricultural conservation is possible and if so, decide what is allowable. New Mexico should not wait for the next big water supply crisis before this issue is resolved.

Unfortunately, given current economic conditions, the greatest need is funding to support conservation efforts where there are inadequate or no financial resources. Conservation in many communities may only happen with state and federal financial support; the Legislature needs to determine which, if any, conservation measures should or could be funded by the state.

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

Kevin Flanigan, Senior Hydrologist, Interstate Stream Commission.

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Active Water Resource Management

For decades, most of the waters of the State of New Mexico have been the subject of litigation to establish the relative priorities of all water users. Although the adjudication process has been divided into dozens of stream systems and sub-basins, complete adjudication of all New Mexico water rights remains a distant hope. Meanwhile, water use in the state has evolved. New water users look to acquire water from old, as dry years come and go. Decisions on distribution and redistribution of water have to be made.

New Mexico experienced a particularly dry year in 2002 and it faces another in 2013. Every county in the state was declared a drought disaster area by the USDA; irrigators received a fraction of their normal 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 problems were wide-ranging, including delivery of water to Texas in compliance with the Pecos River Compact; structuring an agreement with the Navajo Nation; and, on the Rio Grande, deliveries to irrigators and maintenance of 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.

Authorizing 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 section 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. 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. Each district will compile a master list of water rights and priorities, and conduct a general hydrological analysis of available water, and with extensive water user input, develop 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 will work with water users 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.

If there is a shortage of water, the water master may employ an administration date which establishes a priority cutoff point. Any water right holders whose priority date falls after the administration date must stop 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.

A water right owner who has been cut off by the administration date may obtain other water by filing a replacement plan. A replacement plan requires an agreement between the junior water user and an owner of a water right that is senior to the administration date who will not be using that water. It allows the junior user to use the senior water right holder’s water temporarily. The OSE 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 users may object. The agency may require changes to the plan. The plan can be revoked later if water supply conditions make it 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. The rules encourage the formation of water user groups.
to facilitate communication and to work out these agreements as an alternative to priority administration. Shortage sharing agreements approved by the OSE may be incorporated into the district’s rules and implemented in place of strict priority enforcement.

When the proposed AWRM rules were published for public review a number of objections were raised. These objections were mostly based on the perceptions that 1) the OSE was substituting its authority and judgment for that of the courts to conduct water rights adjudications, and 2) the OSE’s hearing process was inadequate for a water user 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 OSE countered that any determinations regarding water rights under AWRM were only temporary, for the purpose of administration, and subject to correction by the adjudication process, which would continue 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 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 found that the delegation of authority by the Legislature was constitutional; the regulations do not violate due process; and the regulations are not unconstitutionally vague.

The urgency for water management in the state is growing more intense. In 2012, the entire state experienced severe to 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 on-line so that they will be 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 OSE 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 the State Engineer also has the legal base, affirmed by the Supreme Court, to move forward with the regulations and to further prepare for the call to manage water under AWRM where necessary. 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. (Oct. 2008)
Updated by Susan Kelly, Esq. (2010)
Darcy Bushnell, Esq. (2012)
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DL Sanders, Chief Counsel, Office of the State Engineer.
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, N.M.S.A. § 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, N.M.S.A. § 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 underground water 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 (N.M.S.A. § 72-12-1 through N.M.S.A. § 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
usually is contaminated with high concentrations of minerals. N.M.S.A. § 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 N.M.S.A. § 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.

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 OSE 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 acre-feet per year.

**Atrisco Land Grant**

In July, 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

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 80%. This means that 20% 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.
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 Moriarity, 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 N.M.S.A. § 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 N.M.S.A. § 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 ground water; and whether the aquifer is entirely non-potable. Requirements for drilling, well construction, inspection, and reporting are in effect for deep wells. The OSE is now considering existing hydrogeologic information to carefully define deep basin boundaries and to determine where declaration of an underground water 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 Joanne Hilton, Hydrologist (2009)
Updated by Kari Olson, ‘14 (2012)
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Pat McCourt, City Manager, City of Alamogordo, New Mexico.

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

Jess Ward, Supervisor, District 1, New Mexico Office of the State Engineer.
Domestic Wells

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. (N.M.S.A. § 72-12-1.1 through § 72-12-1.3) For the past 55 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, 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, 45 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 October 2010. The Bounds and the New Mexico Farm and Livestock Bureau were granted certiorari in January 2011. As of the date of this publication, the New Mexico Supreme Court has heard oral arguments and its decision is still pending.

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 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.

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

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

The Legislature enacted a new section of the municipal code in 2001 (N.M.S.A. § 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 now obtain a permit from the municipality after receiving a permit from the OSE. (N.M.S.A. § 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. In 2007, in the case of Stennis v. City of Santa Fe, the New Mexico Supreme Court confirmed the authority of municipalities to restrict domestic wells.

Domestic Well Management Regulations

On August 15, 2006, after a series of public hearings, then State Engineer John D’Antonio 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 N.M.A.C. 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 but not to 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 surface 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 use 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.

Legislative Initiatives

There have been several bills in recent years proposing changes to domestic well adminis-
Domestic Wells

In spite of the language in the statute, “the State Engineer shall issue a domestic well permit” upon the filing of the application, the Court found that the State Engineer has the discretion to exercise regulatory authority to protect senior water rights from impairment.

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.

Court of Appeals

The New Mexico Court of Appeals issued its ruling in the Bounds case on October 29, 2010. While acknowledging the potential problems created by domestic wells – a proliferation of domestic wells can adversely impact senior water rights, unacceptably affect surface and groundwater supplies, interfere with the ability of cities and counties to engage in effective and orderly planning for growth – the Court nonetheless held that the domestic well statute is not facially unconstitutional. In spite of the language in the statute, “the State Engineer shall issue a domestic well permit” upon the filing of the application, the Court found that the State Engineer has the discretion to exercise regulatory authority to protect senior water rights from impairment. Further, the State Engineer has a duty to do so.

The opinion illuminates the Court’s view of the priority administration doctrine: “It is up to the Legislature and the State Engineer to create an efficient, effective, and fair administrative process to reach the required balance and to protect senior water rights…. [T]he priority doctrine is not a system of administration. It does not dictate any particular manner of administration of appropriation and use of water or how senior water rights are to be protected from junior users in time of water shortages.” The Court holds that the New Mexico Constitution establishes a broad “priority principle,” requiring the Legislature to enact laws to set out a process for adhering to the principle. “The State Engineer must see to it that senior water rights are not impaired by new...
appropriations.” The State Engineer is to adopt rules and regulations.

A fair reading of the opinion is that the State Engineer’s 2006 domestic well regulations are a step in the right direction. Given the problems created by domestic wells that the pueblos and tribes, counties and cities complain of and which are re-stated by the

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Consuelo Bokum, Board Member, New Mexico Water Dialogue.

Steve Hernandez, Esq., Steven L. Hernandez, Law Office, PC.
Community Water Systems

Apart from the major cities along the Rio Grande corridor, much of New Mexico remains relatively rural. Recent studies estimate a 2010 population of around 2,080,000 statewide. In the state fiscal year 2011, about 1,836,000 people, or 88% of New Mexico’s population obtain their water from community water systems. Approximately 284,000 people, or about 14% 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 5000 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 [hereinafter 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 New Mexico Environment Department, and the New Mexico 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.

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 which ensure safe drinking water. To operate effectively, water systems must have sufficient financial, managerial, legal and technical capacity. The smaller systems, however, lack the resources of many larger systems and often cannot develop and/or sustain the necessary capacity.

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

88% of New Mexico’s population obtain their water from community water systems.
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 which 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.

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 which accommodate at least 15 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 New Mexico Environment Department (NMED), Drinking Water Bureau will assist in some instances. The Bureau performs all other sampling and pays for the analysis of compliance samples. The New Mexico Water Conservation Fund (N.M.S.A. § 74-1-13) provides funding to the Bureau to sample for some contaminants. 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 (N.M.S.A. §§ 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 (N.M.S.A. §§ 3-29-1 through 3-29-21). 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.

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.

**Water Cooperatives.** If formed under the Cooperative Association Act, N.M.S.A. §§ 53-4-1 through 53-4-45, water and/or waste water co-ops operate as private, membership-based organizations, governed by boards of directors elected by the members according to the by-laws. 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.

**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, N.M.S.A. §§ 73-21-1 through 73-21-55, 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.

**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.

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 that have been affected and in some instances 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.

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 Association is funded by membership fees and funding partners, such as the USDA 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 state-wide on-site assistance, training, and troubleshooting support to water and wastewater system operators, board members and managers.
One of the challenges facing small rural water systems is acquiring financing for system operation and maintenance, periodic upgrades, and in some instances, expansion.

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 thirty-five (35) years of experience providing a wide range of community development services to rural communities in fifteen (15) 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 5-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 5 community strategic plans, and trained 80 individuals in green infrastructure.

New Mexico Environmental Finance Center (NM EFC). The New Mexico 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 ($.03) 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
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 State 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 forty-three (43) new Severance Tax Bond appropriations valued at $6,578,016, and twelve (12) reauthorizations. It disbursed over $22 million for water, wastewater and solid waste projects; performed administration and construction oversight for seventy-three (73) projects; and closed thirty (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.

**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 2012. These loans provided funds to: a) San Juan County for an $86,000 loan at 3% interest and b) the City of Las Vegas for a $356,000 loan at 0% interest. The CPB is currently providing oversight for eight (8) construction project loans and grants.

**Rural Infrastructure Revolving Loan Program (RIP).**

The Rural Infrastructure Revolving Loan Program (N.M.S.A. §§ 75-1-1 through 75-1-6) provides financial assistance to local authorities for the construction of or modification of water supply, waste water 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% to 2.375% allowing more communities to accomplish essential infrastructure improvements. As of December 31, 2012, the Bureau has twelve (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.

New Mexico Water Trust Board (WTB). The New Mexico 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, treatment or reuse. Recently, the WTB approved new capacity criteria for funding water systems. New Mexico 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 New Mexico Finance Authority administers loans from the Public Project Revolving Fund (PPRF) and the USDA 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 MHI. For some small systems where the MHI is high for the general area the grant can be as low as 25% 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 (35) individuals to seven (7). 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 which 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 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 that there 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.

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, Esq. (2009)
Revised by Darcy Bushnell, Esq. (2012)
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§§ 53-4-1 through 53-4-45, Cooperative Associations.

§ 72-4-3, Authority to Establish County Water Supply System.

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Land Use and Water Supply

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 a 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 which have the potential to impact water quality. Land use decisions can potentially affect both water quantity and water quality; and 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.

“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 & 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
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, of which there are many throughout New Mexico, 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

Subdivision development outside of municipalities is governed by the local county commission through its zoning authority and the Subdivision Act (N.M.S.A. § 47-6-1 through § 47-6-29). 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 county-wide 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 40 years without being subject to forfeiture for non-use.

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 (H.R. 6124, 110th Congress 2d Session). These policies can impact agricultural practices by affecting the economics of growing certain crops, or through support for 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 Bureau of 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 Forest Service, the Bureau of Land Management, and the 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.

Indian Tribes
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 clean-up programs with approval from the U.S. Environmental Protection Agency.

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 (saline), 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.

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:

*Implementation of 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 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).

**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 and water management decisions are frequently made by different levels of government with different statutory authorities and sometimes conflicting goals.
Finally, the planning office could provide coordination among state agencies regarding infrastructure decisions and policy objectives.

Revisions to 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, where appropriate, 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.

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

Support initiatives to improve quantitative understanding of the water supply and water uses in New Mexico: 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, which 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.

Support agricultural policies that lead to efficient water management: Since most of the water in the state is used for agriculture (about 75%, but which varies from one region to another) many people consider transferring water from agriculture to be a future safety net to meet the demands of growth. However, cyclical drought and climate change may reduce surface water 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. Further, 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 who enact by-laws seeking to protect their water rights from transfer (see the paper on Acequias in this edition of Water Matters!). Furthermore, in the 2009 session, the Legislature enacted legislation limiting the powers of municipalities to condemn agricultural water rights. (See Section 3-27-2 N.M.S.A.)

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. (There is a separate article on the topic of domestic wells in this edition of Water Matters!) While the issue of the constitutionality of the domestic well statute is on appeal, and it may be awhile before it is finally resolved, the State has tools available to better manage domestic wells and their impact on water supply.

Maximize water conservation in 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 further consistent state-wide 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 such as Leadership in Energy and Environmental Design (LEED) and other sustainability initiatives, such as appliance retrofits, xeriscaping, roof-top harvesting, grey water and wastewater re-use are all areas that deserve continued support and further development of programs.

Provide for a better linkage between planning programs and funding sources: Water plans are prepared on a local, regional and statewide basis. Section 72-1-9 N.M.S.A. 40-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 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.

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.
(homeowner rebates, xeriscaping, in-home leak detection, etc.), 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 adequately address 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 (a coal fired power plant uses 110 to 300 gallons per megawatt hour). In the western United States, the U.S. Bureau of Reclamation estimates that ninety-eight percent of energy conservation goals can be met with 68% 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 (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 use these efforts 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, 1000 Friends of New Mexico, to study issues surrounding land use and water availability. The group’s on-going goal is to develop a White Paper to be used to inform policy-makers of these issues. The White Paper is still in development and the participants have not completed the analysis. A draft has been substantially edited by Susan Kelly and Joanne Hilton for the purpose of including portions of it in this edition of Water Matters! 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 and when the final version and recommendations of the White Paper are complete, a full list of credits will be included in that document.

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

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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 use these efforts to direct our activities towards the most feasible, cost effective and sustainable strategies.
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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 clean-up 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 clean-up 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

Water quality is a difficult subject to navigate; there is a complex web of statutes and agency involvement.
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.

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 stormwater 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 Drinking Water Bureau oversees public drinking water systems to ensure that water quality delivered to the public meets standards.
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 New Mexico 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 standards. The Drinking Water Bureau provides technical assistance and community outreach 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 mission of the *Surface Water Quality Bureau* 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. The State of 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 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 Ground Water Quality Bureau (GWQB) issues Groundwater Discharge Permits (pollution prevention permits); implements the NMED’s responsibilities under the New Mexico 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; and implements the Voluntary Remediation Program. The GWQB also 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 Department of Energy (DOE) Oversight Bureau.

Other Entities Responsible for Water Quality Regulation

In addition to the New Mexico Environment Department, a number of other entities have an involvement in oversight of water quality programs in New Mexico, including Tribes, Pueblos and various federal and state agencies.

Under the federal Clean Water Act § 518(e), Indian Tribes and Pueblos have the authority to be treated as states, allowing them to adopt water quality standards and to administer programs similar to those carried out by the New Mexico 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 New Mexico 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 New Mexico. The relationship between the work of OCD and that of the WQCC has been in the foreground recently due to the new “Pit rules” (discussed later in this article).

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 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 in New Mexico

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 and 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; synthetical lining of new impoundments; measurement of discharge volumes using flow meters; and backflow prevention measures to protect cross-connected supply wells.

The GWQB 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. As of December 2012, the GWQB has 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 proposed amendments are scheduled to be heard before the WQCC in January 2013.

*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 recently 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 recently 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 characterized. 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; manufacture of PCBs in the United States was banned in 1979. Further sampling and analyses will be conducted by the stormwater management agencies in the Albuquerque area as a condition of their upcoming EPA storm water permit. The intent is to locate significant sources of PCBs within the urban watershed.

Other recent monitoring has also detected pharmaceutical compounds in the drains and ditches that flow to the Rio Grande. Compounds detected included low levels of pain relievers, insecticides, and others. 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.

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<th>Arsenic and Other Natural Contaminants</th>
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<td>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. Arsenic 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.</td>
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<td>There have been isolated detections of uranium, above drinking water standards, in groundwater due to natural sources in Espanola and the Pojoaque Valleys, and in some wells in the Santa Fe area and 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, as discussed in the Deep Water Regulation article in this Edition. Individual drinking water systems must</td>
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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 the much of the salinity is due to natural discharge of saline groundwater.

**Mining Impacts on Water Quality**

New Mexico has a long history of mining activity, including 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 1993 New Mexico Hardrock Mining Act 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.

There are numerous industrial, mining, and commercial sites around New Mexico that are currently being monitored and in some cases have been remediated.

- **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 waterbody, 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 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
Water Matters!

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.

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 an 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 which it is imperative that New Mexico 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, Esq.

Updated by James Hogan, Acting Bureau Chief, Surface Water Quality Bureau, NMED; Kimberly Kirby, NMED; Jerry Schoepnner, Chief, Groundwater Bureau, NMED (Dec. 2012)
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James Hogan, Acting Bureau Chief, Surface Water Quality Bureau NMED.

Kimberly Kirby, NMED.

Jerry Schoepner, Chief, Groundwater Bureau, NMED.
Water for New Mexico Rivers

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, by definition, flows to support fish and water-dependant wildlife. Rivers, wetlands and riparian areas comprise a very small part of the landscape – a mere 1%. But, this 1% 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. When it comes to New Mexico’s bird life, two-thirds of the state’s Important Bird Areas can be found occupying this very small area of freshwater providing critical breeding, winter, 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.

History of Flow Alteration

Since the early use of irrigation systems, humans have altered the natural flow of rivers for human benefit. The extent of alteration has increased with population growth and economic development of 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 is free of some form of human alteration.

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.”


Los Pinos River
Photo by Susan Kelly
Mexico that doesn’t have significant changes to its natural flow patterns.

Human uses also sustain flows, such as downstream deliveries for municipal use and to satisfy Compact obligations or return flows from farm fields and municipal waste water. 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 Rio Grande of New Mexico and West Texas, the annual volume of flows is one-tenth that of pre-development. 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. 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.

Despite these statistics, freshwater ecosystems are some of the most resilient ecosystems on the planet—quick to recover when the essential components of sediment and natural flow regimes are restored.

Hydrograph of Rivers

Each component of a river’s natural hydrograph—base flows, high flows, and large floods—is key to sustaining the integrity of a river’s processes and functions. There are strong indications that existing alterations to the seasonality and the volume of flows currently exceed the ecological viability of our rivers: 55% of New Mexico’s native fish species are threatened, endangered or already extinct, 31% of New Mexico’s assessed stream miles have water quality impairments, and 90% of New Mexico’s original riparian forests no longer exist. Despite these statistics, freshwater ecosystems are some of the most resilient ecosystems on the planet—quick to recover when the essential components of sediment and natural flow regimes are restored.

It is not possible to return to pre-development conditions, but mimicking the river’s natural hydrograph—a variable pattern of high and low flows throughout the year as well as across years—would exert a very positive influence on the health of New Mexico’s rivers. Mimicking a river’s natural hydrograph would do more to improve river health than just improving water quality or minimum stream flows alone.

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 considered likely to see limitations in water availability within the next generation (2050) as a result of climate change, and growing water demands for urban use and power cooling. As water demands exceed supply, it is likely that new infrastructure and interbasin transfers will be proposed and river health will be further jeopardized. These projects should be carefully evaluated, since healthy rivers can 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 have to 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, as well as recent climate history. Vulnerability assessments for biodiversity and hydrologic alteration, currently underway, can help prioritize and focus New Mexico’s management and restoration of our river ecosystems.

Unhealthy rivers don’t just jeopardize New Mexico’s fish and water-dependent wildlife, it makes all New Mexicans more vulnerable. Healthy rivers are the original “green infrastructure,” providing free ecosystem 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.

**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, reversed course and enacted instream flow programs: Colorado and Montana in 1973; and Washington in 1974. Oregon followed suit in 1987. 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 challenges in administration. The success of these instream flow programs is measured in tens, hundreds, and in some cases thousands of permanent permits for instream flow.

<table>
<thead>
<tr>
<th>Historically, western water laws and policies did not contemplate dedication of water for rivers.</th>
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</table>
| **Instream Flow Benefits to Landowners**
One illustration of the success of western instream flow programs is the State of Montana. There, instream flow was recently 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 flow has brought economic diversity and 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 when flows directly benefit federal threatened and endangered aquatic species. |

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| One illustration of the success of western instream flow programs is the State of Montana. There, instream flow was recently championed by an alliance of ranchers and Trout Unlimited. |
New Mexico lagged behind other western states in addressing instream flows until recently. 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 Office of the State Engineer granted permits to the Bureau of Reclamation and the New Mexico Interstate Stream Commission for the release of water from reservoirs to augment stream flows for endangered fish species on the Pecos River and Rio Grande respectively.

### Strategic Water Reserve

In 2005, the state Legislature enacted the Strategic Water Reserve, authorizing a state agency to dedicate water to environmental flows and implicitly recognizing that water for fish and wildlife is a beneficial use under New Mexico law. The Strategic Water Reserve authorizes the New Mexico Interstate Stream Commission to use reserved water or water rights to benefit listed species and to avoid additional listings of species. (N.M.S.A. 1978 § 72-14-3.3(B)(2) (2005).) That same year, the Office of the State Engineer amended the regulatory definition of “beneficial use” to include “fish and wildlife.” (N.M.A.C. § 19.26.2.7(D).) In 2008, the New Mexico Interstate Stream Commission utilized the Strategic Water Reserve for the benefit of a listed species for the first time. The Office of the State Engineer granted a permit to the New Mexico Interstate Stream Commission to divert groundwater to augment stream flow for the federally threatened Pecos Bluntnose Shiner.

<table>
<thead>
<tr>
<th>Legal Status in New Mexico</th>
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<tbody>
<tr>
<td>New Mexico lagged behind other western states in addressing instream flows until recently. From 1955 to 1990, New Mexico State Engineer Steve Reynolds held steadfastly to the opinion that appropriation of surface water under New Mexico law was dependant 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 neither the New Mexico constitution, statutes or case law require a diversion 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 indicated, in a parallel memorandum, that it could act favorably on an application for instream flow if there was sufficient dominion and control such as accurate and continuous gauging devices to perfect the right and demonstrate continued use of the surface water appropriation. As a result, the Attorney General of New Mexico 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.”</td>
<td></td>
</tr>
</tbody>
</table>
Other Programs in New Mexico

In 2009, the Office of the State Engineer authorized federal, corporate and private water rights holders to leave water instream for the benefit of the federally protected Chihuahua Chub under an underutilized state-approved water conservation program statute. (N.M.S.A. 1978 § 72-5-28(G).) The conservation plan is an agreement with water right holders to fallow acreage and not divert, indirectly preserving instream flow. 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 new and unique tool in New Mexico’s environmental flow tool box.

Another effort underway is the establishment of an environmental water transaction program in the Bureau of Reclamation’s Rio Grande Project. There, under voluntary agreements with existing water right holders, water rights would be suspended from existing irrigated acreage and transferred to riparian habitat. Water would be diverted or pumped from the river to irrigate native trees, shrubs and grasses much like growing a commercial crop. Private and/or public funding would be used to pay for the water and water rights. All voluntary suspension and transfers would 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. Benefits 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.

For the last four years, the state Legislature has appropriated almost $8 million to 47 community supported river and watershed restoration projects statewide. These projects are led by a broad array of New Mexicans 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 already becoming apparent in every corner of the state. The totality of these efforts over the last decade reflects both the physical reality of altered stream flows on the state’s native fish populations and the resourcefulness of New Mexicans to sustain river ecosystem health in a state where political support for historic uses of water remains strong.

Finally, on December 1, 2010, the Water Quality Control Commission approved a proposal to guarantee the highest level of protection under state law to hundreds of miles of rivers and streams. The proposal designates these waters “outstanding national resource waters” in federal wilderness areas and prohibits activities that would degrade water quality.
Next Steps for New Mexico

The Utton Center sponsored a well-received workshop on environmental flows in March 2010 in cooperation with the Rio Grande Restoration and a number of other groups. Numerous 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 New Mexico Department of Game & Fish, New Mexico Environment Department and the OSE/ISC. While a lot is happening, clarification of agency responsibilities and better coordination and collaboration among state natural resource agencies could assist in the progress. A technical team of volunteer experts is moving forward to evaluate the scientific information available in New Mexico on key river reaches. The idea is that through obtaining a better understanding of the state of New Mexico’s rivers, actions can be focused in areas where most needed and feasible to achieve success. When resources allow, this effort must become well integrated with the activities of the State agencies and basinwide, state and regional water plans. Finally, a reliable source of funding for the Strategic Water Reserve and River Ecosystem Restoration Initiative would provide resources for the State to take advantage of opportunities to secure environmental flows when they arise and support community-based restoration of instream ecosystem function and watershed health.

By Beth Bardwell, Director of Freshwater Conservation, Audubon New Mexico

The Utton Center sponsored a well-received workshop on environmental flows in March 2010 in cooperation with the Rio Grande Restoration and a number of other groups. Numerous representatives of State agencies attended, as well as several State legislators.
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Gary Esslinger, Treasurer-Manager, Elephant Butte Irrigation District.

Steve Harris, Executive Director, Rio Grande Restoration.

Josh Mann, Esq., U.S. Bureau of Reclamation, formerly of the Interstate Stream Commission.

Laura Ziemer, Trout Unlimited.
Groundwater in New Mexico

Since the late 19th century, New Mexicans have been developing the state’s groundwater resources. From hand-dug wells to proposed wells penetrating to 12,000 feet, residents have sought sources in lieu of, to supplement or to replace surface water. Today the state relies upon groundwater to supply almost 50% of its needs. Technology allows scientists and legislators to better understand the physical characteristics of the resource so that future generations also may be served.

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 Artesia area drilled their first wells in 1891 and constructed the first large municipal well in 1903. A few years later, development for agricultural purposes took off creating a successful economy based on groundwater. Extensive shallow groundwater development took place in the 1930s. By the 1950s, withdrawals on average exceeded the projected average natural recharge by 80%.

Other areas in New Mexico also experienced growing groundwater use as development increased. In the Gila River and Mimbres River areas, settlers concluded that available surface water and rainfall were not sufficiently reliable for their agricultural pursuits. They too turned to wells and groundwater to make up the difference and support irrigation and livestock production.

With the introduction of new technologies and population growth, New Mexico groundwater development exploded following World War II. In 1931, the New Mexico Legislature passed the state’s Groundwater Code. The Code gave the State Engineer control over groundwater administration, although such control was not conferred until the Engineer “declared” a

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

Identifying 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 of the declaration. At present, all groundwater basins have been declared in the state.

The drought of the 1940s and 1950s intensified interest in groundwater pumping as surface water supplies and precipitation dwindled. Pumping has continued and as a result many New Mexico water tables have continued to drop. For instance:

- In the Albuquerque area, some groundwater levels tracked by the USGS in production wells have declined more than 120 feet in the past forty years.
- In the Animas Basin located in the southwest corner of New Mexico, groundwater pumping for agricultural uses caused the water table to drop more than 80 feet between 1948 and 1981.
- In the Roswell Artesian Basin, from 1950 to 1975, the declines in the alluvial aquifer ranged between 40 and 80 feet.
- In the Gallup area, the water table dropped about 200 feet between 1999 and 2009 and is not expected to meet the demands of the population by 2019.

A central concern about groundwater from a legal point of view is the connection between groundwater and surface water. To the extent that groundwater pumping affects surface supply, the increase in groundwater use in New Mexico may reduce the amount of water available for surface water rights, which are often senior to groundwater rights. In City of Albuquerque v. Reynolds, the New Mexico Supreme Court established a principle that has deeply affected water law and administration throughout the West; that is, a state’s water official, such as the New Mexico State Engineer, has the authority to recognize the connection between surface and groundwater in his administration of water. This principle means that ground and surface water must be considered together in any analysis of water rights.

As of 2009, New Mexico uses 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% of the water used in New Mexico. The Association reported the annual usage in 2011 as follows:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>MGD</th>
<th>% total GW</th>
<th>% total supply for purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Supply</td>
<td>249</td>
<td>15%</td>
<td>87%</td>
</tr>
<tr>
<td>Household (self supplied)</td>
<td>32</td>
<td>02%</td>
<td>100%</td>
</tr>
<tr>
<td>Irrigation</td>
<td>1,270</td>
<td>76%</td>
<td>45%</td>
</tr>
<tr>
<td>Livestock/ Aquaculture</td>
<td>49</td>
<td>03%</td>
<td>70%</td>
</tr>
<tr>
<td>Industrial (self supplied)</td>
<td>12</td>
<td>01%</td>
<td>87%</td>
</tr>
<tr>
<td>Mining</td>
<td>57</td>
<td>03%</td>
<td>98%</td>
</tr>
<tr>
<td>Thermoelectric</td>
<td>10</td>
<td>01%</td>
<td>19%</td>
</tr>
</tbody>
</table>
In 1964, Charles Theis warned:

…[R]eserves of groundwater accumulated over millennia are being depleted at a rate that will exhaust some of them in decades and will demand changes in the economy or the development of new concepts in water supply in the not-distant future.…

…In their pristine state, water bodies are in approximate dynamic equilibrium, with recharge over a period of years balancing the natural discharge through springs, invisible seepage into surface streams or lakes, and evaporation and transpiration where the water table stands near the surface. Wells represent a new discharge superimposed on this previously stable system, and the discharge from wells has to be balanced by increasing the recharge, or decreasing the natural discharge, or by some combinations of these processes.

As the population grows and drought intensifies, groundwater sources are tapped with increasing urgency, even as precipitation decreases. Limited steps are being taken to preserve groundwater through limiting withdrawals when surface water is available, conservation, and groundwater recharge.

Groundwater Basins of New Mexico

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. An isolated or closed basin, encased by surrounding geology, does not receive significant recharge from surface water or precipitation. These basins do not recover appreciably from withdrawals. Groundwater withdrawal which exceeds a basin’s recharge is regarded as mining or overdrafting. Examples of mined aquifers in New Mexico include the Ogallala Aquifer of the Great Plains where it extends into eastern New Mexico; the Jornada del Muerto and Hueco Basins of the southern New Mexico; and the Estancia Basin located east of Albuquerque and the Sandia Mountains. Some basins are not well connected to surface water sources and thus recharge and recover from pumping slowly. Other basins, such as the Albuquerque Basin are hydraulically well connected to surface water and receive recharge from stream flows.

Underlying the declared groundwater basins are undefined deep water basins or aquifers. Toward the end of the 20th century, attention turned to this groundwater as a possible source to meet 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.

To be classified as deep groundwater, the top of an aquifer must be at least 2,500 feet below the land surface and contain nonpotable water. Nonpotable groundwater contains not less than 1000 mg/l of total dissolved solids. If an overlying shallow groundwater basin contains nonpotable water, it is likely that the underlying deep groundwater will also be nonpotable. Information about these aquifers is derived largely from oil and gas wells and is fairly sparse.

To ascertain the boundaries of these basins, hydrogeologists apply existing knowledge, information about geology and structure, and the principle that the major regional divides between surface and shallow
Some tribes have developed and adopted tribal water codes which include provisions regarding groundwater management.

groundwater generally reflect the deeper underlying structures. The OSE Hydrology Bureau continues to examine potential deep groundwater basin boundaries and their hydrologic connections to shallow groundwater and surface water.

Institutional Structures For Regulation

State, federal and tribal governments 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 develops rules, regulations and guidelines to carry out the purposes of the Code. 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.

To declare a basin, the State Engineer conducts studies to determine the basin’s hydrologically distinct or “reasonably ascertainable” boundaries. The Engineer declares basins in response to increased well development, aquifer draw downs and impacts on surface water which put existing interstate and intrastate obligations and uses at risk. In 2006, the State Engineer declared all remaining undeclared basins in the state. The legal description of each basin is found in Article 7 of the Rules and Regulations. These declared basins do not involve deep, nonpotable groundwater in aquifers with tops more than 2500 feet below the land surface.

Rules, Regulations and Guidelines: The statutes provide the Engineer with the authority to:

…adopt regulations and codes to implement and enforce any provision of any law administered by him and may issue orders necessary to implement his decisions and to aid him in the accomplishment of his duties. In order to accomplish its purpose, this provision is to be liberally construed. (N.M.S.A. 1978 § 72-2-8).

The State Engineer develops 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 process;
• Licensing of uses;
• Construction of wells;
• Changes to location, place or purpose of use;
• Changes of ownership;
• Supplemental, deepened and repaired wells;
• Plugging of wells;
- Termination of water use;
- Metering and reporting requirements; and
- Transport and storage of water.

**Appropriations, Declarations, Permits & Licenses:** State Engineer documents that describe appropriations include declarations, permits, licenses or some combination of the three. Prior to the State Engineer’s declaration of a groundwater basin, regulation of groundwater appropriation occurred under the common law. A future appropriator had only to dig or drill a well and put the water to beneficial use to create a vested or perfected right. This water right owner could file a declaration with the OSE, but it was not required. A declaration gives the public notice of an intent, or of previous actions taken, to use groundwater. Declarations serve as *prima facie* proof of the facts stated, but do not actually create a water right. That is accomplished through beneficial use. Under the *Mendenhall* doctrine, if drilling a well is initiated but not completed prior to the declaration of a basin, no permit is required.

Once a basin is declared, all new groundwater appropriations, alterations to existing uses, and drilling of supplemental or replacement wells require a permit from the State Engineer. When an application is filed, the Engineer publishes a notice once a week, for three weeks in a newspaper located in the county where the well will be located and in each county where the water will be used or other water rights will be affected. Anyone who objects to the proposed water right or well may file an objection with the OSE. The basis for objections must include substantial and specific impairment of the objector’s existing rights. In addition, an objector may assert that granting the permit would be contrary to the public welfare and/or the conservation of water within, or detrimental to the public welfare of the state. If there is unappropriated groundwater water and the other tests are met, the permit will likely be issued.

Today, most applications are challenged. The OSE’s Administrative Hearing Unit hears challenges, takes evidence and renders decisions. The hearing examiner submits a report and recommendations to the State Engineer for disposition. Any decision of the Engineer may be appealed to the district court in the county where the diversion will take place. Following the issuance of a permit, a licensed driller constructs the well and files the appropriate paperwork with the Engineer. Cities such as Santa Fe may further limit wells drilling within their boundaries.

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.” Very few licenses have been issued in recent years.

**Mined Groundwater Basins:** The process, law, and regulations for permitting or licensing new and changed uses are the same for all groundwater appropriations. The State Engineer, however, may develop administrative guidelines for issuing permits for new appropriations and changes to uses in mined groundwater basins. Groundwater mining occurs when.
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. These guidelines may include provisions such as, but are not limited to:

- closing a basin to new appropriations except for those obtained under N.M.S.A. 1978 § 72-12-1;
- using block computer models and local assessment methods to evaluate the effects of a proposed well and to appropriately limit drawdowns in areas;
- limiting drawdowns over a set period of time such as 40 years;
- limiting permits to consumptive beneficial use for different purposes as determined by the OSE;
- limiting the per-acre amount to be transferred for an irrigation use where there is to be a change of use;
- limiting transfer amounts in the case of stacking or spreading of water rights; and,
- requiring meters and usage reports in certain instances.

Guidelines have been issued for the underground water basins of Estancia (2002), Lea County (2009), Curry County and Portales (2010), and Roswell (2005) as well as the administrative areas in the Mesilla Valley (1999), the Alamogordo-Tularosa area in the Tularosa Underground Water Basin (1997), and the Middle Rio Grande (2000).

The State Engineer can also declare a Critical Management Area (CMA) within a mined basin. A CMA defines an area where excessive water level decline rates require additional protection. It generally includes any area where there is insufficient groundwater is pumped faster than it is replenished in a basin. The Engineer’s objective is to administer groundwater basins to extend their productive life by regulating the rate of dewatering. The guidelines often follow the Engineer’s determination that the groundwater in a basin has been fully appropriated. This determination is captured in an order which closes the basin for an indefinite period to new water use permits issued under the general groundwater appropriation statute, N.M.S.A. 1978 § 72-12-3. Among those closed to new development are the underground water basins of Estancia (2001), Curry County and Portales (2009), and the Lea County - High Plains Aquifer area (2009), and portions of the Roswell Underground Water Basin (2005).

The State Engineer considers developing guidelines when a groundwater basin shows signs of significant stress. Thus, problems which have lead 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
- concerns about groundwater depletion effects on the Rio Grande from Albuquerque’s municipal pumping and the subsequent effects on senior users, Compact obligations, and land subsidence.

These conditions signaled a need for more careful and restrictive administration.
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. Basins which include CMAs include the Estancia, the Lea County, the Curry County-Portales, the Roswell, the Tularosa, and the Middle Rio Grande.

**Pumping Depletions on Surface Water:** Where groundwater pumping is or will cause unacceptable depletions on fully appropriated surface water resources, the State Engineer can condition any new permit by requiring ‘offsets’. To effect an offset requirement, a proposed appropriator must acquire a senior surface water right and obtain a 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 water right is said to be ‘retired’.

Offsets are a part of the Mesilla Valley Administrative Criteria and are described as being

“…achieved by acquiring a volume of water through a water right or other contractual obligation in the affected water source and releasing that water to replenish the affected volume in the source that results from exercise of the permitted groundwater appropriation. Offsets must be made before groundwater withdrawals commence tantamount to surface water effects associated with the full exercise of the permit.”

Mesilla Guidelines at page 5. 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. Offsets are also required in the guidelines of the Middle Rio Grande Basin, and the Roswell Basin.

**Domestic and Other Small Uses:** The State Engineer’s authority over relatively small groundwater withdrawals for domestic, livestock and temporary purposes is somewhat limited. N.M.S.A. 1978 § 72-12-1 and its subparts require applicants to apply for permits and require the Engineer to issue them. The Engineer does so without evaluation, public notice or hearing because issuance is mandatory.

In the exercise of his authority, however, the State Engineer has developed domestic well regulations. The current regulations were issued in 2006 and amended in 2011, and do not affect pre-existing appropriations. The regulations are similar to those issued for other groundwater uses. The State Engineer may also declare a Domestic Well Management Area 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 right. The limits are based on the hydrologic conditions and the number of existing water rights within the declared area. In 2003, the Engineer declared a CMA in the Tularosa Underground Water Basin for the La Luz, Fresnal and Laborcita watersheds in the Sacramento Mountains and limited new domestic well diversions to no more than .5 acre-feet per year.

Basins which include CMAs include the Estancia, the Lea County, the Curry County-Portales, the Roswell, the Tularosa, and the Middle Rio Grande.
Metering and reporting allows the State Engineer water masters to monitor for over-diversion and to manage the condition of the aquifer.

**Metering:** 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. Previously, metering was not required unless by a court order. In the Roswell Artesian Basin, the Lewis court entered a January 19, 1966 Partial Final Judgment and Decree which provided for the metering of all irrigation, industrial and municipal wells. In the Aamodi water rights adjudication of the Rio Pueblo valley, the federal court ordered that all subsequent domestic wells developed be metered and limited to indoor use only. 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 also requires metering in the critical underground water areas in 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 for domestic or livestock purposes. He retained authority to 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 quarterly 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 N.M.S.A. § 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. In 1997, Midway Ranch Ltd Partnership filed the first notice of intent, completing the well that same year. By April 2009, a total of 607 notices had been filed for appropriations for about 1.6 million acre-feet per year from depths between 2,500 to 12,000 feet. At that time, only five wells had actually been constructed. Most of the notices were filed in 2008-2009 and were related to drilling in the Middle Rio Grande area.

Under the current statute, the Engineer may obtain regulatory authority over nonpotable 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 nonpotable 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 nonpotable resources while protecting water rights and compacts; and

6. Recognizing that the economics of development will limit the use 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. After drilling the well owner must submit well records, proof of compliance with drilling standards, and water quality results. Then meter readings are submitted on a quarterly basis. 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 nonpotable nature of the water.

The Interstate Stream Commission (ISC) protects New Mexico’s right to water under eight (8) interstate compacts, ensures the state meets its obligations to its sister states and makes certain that endangered species are afforded necessary water. The ISC becomes involved in groundwater management where pumping affects surface water deliveries required under compacts and by endangered species such as in the Lower Rio Grande and Pecos River regions. 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 Company*, 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 to 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
The effect of groundwater pumping on the surface water rights is playing out in New Mexico’s Lower Rio Grande water rights state court adjudication.

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 the 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. 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 American 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 sets 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 address head on by court or by 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 that under every sovereign, the Pueblos did not own groundwater but rather developed rights to use it.

**Groundwater Regulation by Tribes:**

Whether tribes can regulate their groundwater or must comply with state law is a matter of debate. Some commentators argue that administration of water within reservation boundaries is a matter of sovereignty. Others assert that since the reservations are located within state boundaries, rational management of the ground and surface water resource demands that the tribal portion be administered under the rules and regulations of the local state engineer.

Development of a tribal water code is one avenue to 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.

None of the New Mexico tribe settlements include tribal water code provisions. However, in a survey conducted by the Tribal Law Journal, several New Mexico tribes have indicated that they have codes addressing water. These Pueblos and Nations include: Acoma Pueblo, Mescalero Apache Tribe, Ohkay Owingeh Pueblo, San Felipe Pueblo, Pueblo de San Ildefonso, and Santa Clara Pueblo. The survey, however, does not contain details of the content of these water codes which could be related to groundwater, surface water, water management and/or water quality.

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 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. Considerations that can mitigate an impairment claim include the age and construction of the allegedly impaired well, the ability of the well owner to continue to use the well, and whether the well can be productively deepened.

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. In the past, these offsets could be purchased and retired over time as the pumping effects were observed on the affected surface water through a process known as ‘dedication’. This practice was discontinued in 1994 after the state attorney general declared it illegal.

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. Thus, 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.

All rights for which permits are issued must undergo this analysis, with one exception – domestic well permits. Under New Mexico statutes, the State Engineer must issue permits for domestic uses. The constitutionality of this statute is presently under consideration by the New Mexico Supreme Court in Bounds v. D’Antonio, No. 28,860 (2011 N.M.C.A. 011), cert. granted, Nos. 32,713 and 32,717 (N.M. January 27, 2011).

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
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 where 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.

The Carlsbad Irrigation District (CID) priority call illustrates the problem. The Carlsbad area was settled before 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 District 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 provides 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 State Engineer must grant applications for domestic wells. 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 3 acre-feet per year. This water was intended to serve a family’s domestic uses, its livestock and the irrigation of 1 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 1 acre-foot per year. These uses cannot be transferred except under very limited circumstances set forth in the 2011 domestic well rule amendments.

**Supplemental Wells:** The source of irrigation rights may be surface water, groundwater or a combination of the two. Under the Templeton doctrine, when a surface water right owner is no longer able to get a sufficient supply of water from a surface source, the owner is entitled, as a
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. 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. 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 in the move-to basin. The priority date of the right travels with it to the new location and when fit into the priority scheme, can cause impairment to existing water rights. Minor impairment will not block a transfer, but more extensive impairment could. These decisions are made on a case-by-case basis.

Unresolved Questions

Several groundwater issues present today are: the effects of groundwater pumping on surface water; the constitutionality of domestic wells; 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 as pumping continues, 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.

Domestic Wells: Since 1943 the State Engineer has not required either publication of notice or a hearing on protests before issuing a permit since the issuance is mandatory. In 1953, the Legislature formalized this practice in the first domestic well statute. The amount of water withdrawn from each domestic well is minimal, or de minimis. In areas where wells are widely distributed, this minor amount of withdrawal per well has little effect on water rights in surrounding ground or surface water.

Concentrations of domestic wells, however, can have a significant adverse effect on surrounding wells, surface water flows, and senior users. According to OSE records from 2000, there are about 137,000 domestic wells throughout the state. Of these, 26% are within one mile and another 27% are within 5 miles of a perennial stream. For purposes of hydrologic modeling, the OSE assumes that withdrawals from wells within 1 mile have a 100% effect on the stream. While the effects of pumping take time to reach any nearby stream, they will eventually reduce surface water flow. Since surface water is fully appropriated in the state, the rights of senior users will be impaired as the cone of depression intersects with streams.
In the mid-2000’s, the case of Bounds v. D’Antonio took on the question of mandatory issuance of domestic well permits. Horace and Jo Bounds are farmers who hold senior water rights in the fully appropriated Mimbres Groundwater Basin in southwest New Mexico. The Mimbres Basin has been closed to new development since 1972, but since the final adjudication of water rights in 1993, 45 additional domestic well permits had been issued at the time the case was filed. The Bounds argue that the domestic well statutes allow a proliferation of wells that will affect surface water flow and impair their senior surface water rights. They assert that this impairment constitutes a taking of Mimbres Underground Basin private property (their right to water) without just compensation or due process. They also argue that the statute is unconstitutional because it violates the prior appropriation doctrine and prevents the State Engineer from protecting senior users. The trial court found in Bounds’ favor in 2008, but the Court of Appeals reversed in October 2010. The New Mexico Supreme Court granted certiorari in 2011 and the matter is currently under review.

Municipal Wells: In the Albuquerque area, 92 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. Studies show that one half of the withdrawn water is being recharged while the other half is mined. The USGS developed a groundwater flow model that predicts what will happen if pumping continues at the same rate to the year 2060. The model predicts, even with conservation goals in place, significant aquifer drawdowns and land surface 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 6 inches in the last 20 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 the Reclamation/Reuse Project which uses treated effluent for irrigated sites such as parks and golf courses were developed. Through utility’s the 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 utility met this goal three years early. The goal of the three programs is to reduce annual pumping to 60,000 acre-feet a year to rest the aquifer so that it recovers

In the Albuquerque area, 92 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.
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 excessive treatment costs requiring reversion to groundwater for two (2) 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 and as did the predicted natural recharge from runoff. In spite of these setbacks, the USGS reported in 2011 rising groundwater levels in the Albuquerque Basin at fifteen (15) of its eighteen (18) monitoring sites.

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 37 wells in the San Agustin Plains near Datil, New Mexico. Augustin Plains Ranch LLC planned to market water to municipalities and the state to help meet its obligations under the Rio Grande Compact. Nearly 900 protests were filed with the OSE’s Administrative Hearing Unit. After a hearing and a recommendation from the hearing officer, the State Engineer “denied the application [without prejudice] because it was vague, over broad, lacked specificity, and the effects of granting it cannot reasonably be evaluated; problems which are contrary to public policy.” The Augustin Plains Ranch LLC appealed to state district court. The court denied the Ranch’s appeal in November of 2012 holding that specificity regarding use and place of use is required in a groundwater application as a matter of law.

Groundwater for Agriculture: Supplying water to thirsty agriculturalists is an issue exemplified by the situation in the Lower Rio Grande region of New Mexico. The Rio Grande is fully allocated through the Compact, the Rio Grande Project and existing users. There is a significant connection between the surface water flows of the Rio Grande and some of the surrounding groundwater basins of Rincon Valley, Mesilla, Jornada del Muerto and Hueco. Recharge in the Jornada and Hueco is very low and pumping above the recharge rate is mining the groundwater. The Rincon Valley and Mesilla Valley are interconnected with the Rio Grande which provides recharge in above-normal flow years. However, if pumping increases over 2004 levels, these basins will also be mined and the Rio Grande flows will be reduced.

Agriculture is an intrinsically valued part of the economy of the area. Yet, with the 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. The 2004 Lower Rio Grande Regional Water Plan reports that the OSE lists 1,738 irrigation wells in the Plan area and 140 livestock wells. 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 cannot all be met. The question of how to divide and manage the water between all competing interests and obligations during times of plenty is hard, and in times of drought, very difficult.

By Darcy Bushnell, Esq. (2012)

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• Title X, Subtitle B - Northwestern New Mexico Rural Water Projects Act Settlement Act.
• Title IV - Crow Tribe Water Rights Settlement Act.
• Title V - Taos Pueblo Indian Water Rights Settlement Act.
Mining Act of 1866, ch. 262, 14 Stat. 251.

Tribal Water Codes:
New Mexico’s Major Reservoirs – An Overview

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 for federal reservoirs, their 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 aquatic species and 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 the various dams and reservoirs.

“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.”

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 which have storage capacities of at least 20,000 acre-feet. We do not address details of numerous small reservoirs, some of which play critical roles in water management. Such reservoirs may hold irrigation water for irrigation districts 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 a canyon of the Santa Fe River, just above the City of Santa Fe, are used for the Santa Fe municipal supply (they hold 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 Co. 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 a different watershed, 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, with small amounts going to Carrizozo, Nogal, and Ft. Stanton.
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 96 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 will be 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 10 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.

Interstate Compacts

A few of New Mexico’s rivers begin within the state and then flow into adjacent states – the Canadian, Pecos, Gila, and several smaller streams. Other rivers, especially 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.

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.

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

We begin upstream in the Rio Grande Basin, since most of New Mexico’s reservoirs are located on the Rio Grande and its tributaries. Then we address the Canadian and Pecos River basins. The overview ends with Navajo Reservoir, which is tributary to 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 a-f  
Storage Dec. 8, 2010: 242,735 a-f  
Responsible agency: Bureau of Reclamation  
Authorization: PL 87-483 (1962)

Heron Dam was constructed by the Bureau of Reclamation – 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 from the San Juan River (actually from three of its tributaries) and is delivered to Heron via the Azotea Tunnel under the Continental Divide. Eventually the water is released to the Rio Chama and ultimately to the Rio Grande. Thus Heron stores *imported* Colorado River Basin water, not water that is *native* to the Rio Grande watershed. (“Native” Rio Grande water is water that originates in the Rio Grande watershed). Any native 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 not subject to the Rio Grande Compact.

The water stored at Heron is for use by the entities that have contracted to receive it, most notably the cities of Albuquerque and 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 and 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, which has become fairly routine, water may remain in Heron until the following September 30th. Diversions from the San Juan River 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 the federal government over the Endangered Species Act. In the course of the ex-

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<th>Municipal Domestic and Industrial Supplies</th>
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<td>Pojoaque Valley Irrigation District</td>
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New Mexico's Major Reservoirs

Rio Grande Reservoirs in New Mexico

Diversion Dams
A Cochiti
B Angostura
C Isleta
D San Acacia
E Caballo
F Percha
G Leasburg
H Mesilla

Cochiti Diversion to north and of Bosque del Apache NWR

Low Flow Conveyance Channel (shown dashed)
San Mescal Gage (abnd.)

Rio Grande Basin
by Jerold Widdison
tensive litigation (1999-2010), federal dis-
trict court Judge James Parker ruled that
the Bureau of Reclamation has “discretion”
to use agricultural and municipal con-
tracted 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, 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. The
litigation has ended for now, but the issue
is not resolved. The Middle Rio Grande
Endangered Species Act Collaborative Pro-
gress is working hard to develop a recovery
program and avoid further litigation.

**El Vado Reservoir**

Capacity: 198,000 a-f (reduced by
sedimentation to a current capacity of
less than 190,000 a-f)

Storage Dec. 8, 2010: 102,307 a-f

Responsible agency: Bureau of Reclamation

Authorization: 1927 Conservancy Act,
N.M.S.A. § 73-14-1 to 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 (MRGCD) works in
1935. The Bureau of Reclamation
rehabilitated the dam in the 1950s and
storage rights were assigned to Reclamation
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 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. It also played
prominently in the minnow litigation, and
another unresolved issue is that both the
MRGCD and the Bureau of Reclamation
claim title to the works of the Middle Rio
Grande Project, including El Vado.

The basic concept in operations at El Vado
involves 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
cfs, in order to provide water for the Rio
Chama acequias. After the end of the year,
and when it is determined how much

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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.
New Mexico’s Major Reservoirs

Abiquiu Reservoir

Capacity: 183,099 a-f of SJC storage
- Primarily for ABCWUA, but small amounts are leased to other SJC contractors
- 551,000 a-f flood and sediment control

Storage Dec. 8, 2010: 182,996 a-f

Responsible agency: Corps of Engineers


Below El Vado, on the Rio Chama, is Abiquiu Reservoir, about 30 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 (COE). 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 (ABCWUA) – acquired storage easements from landowners to 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.

**Article VII of the Rio Grande Compact**

Article VII of the Rio Grande Compact is a provision that 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, 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 has affected operations in 13 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 (not subject to the Compact) 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.

elevation 6,220 feet. 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 cfs, 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 cfs 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,
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, such as environmental clearances and agreements with underlying real property owners, for native storage on a permanent basis to occur.

Flexibility was in play at Abiquiu 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 and not over-deliver to Texas, and to reduce evaporative losses from the high rates of loss that Elephant Butte experiences. 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 a-f recreation pool; 590,000 a-f flood control pool
Storage in Dec. 8, 2010: 52,997 a-f
Responsible agency: Corps of Engineers
Authorization: Flood Control Act of 1960, PL 86-645; PL 88-293 (50,000 a-f 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. Cochiti Dam was built for flood and sediment control purposes, primarily to protect the City of Albuquerque from extreme flooding events. A permanent recreational pool was authorized in 1964 and 5,000 acre-feet of SJC water was allocated annually – in the first 10 years to create a 50,000 acre-foot pool; and thereafter to replace the evaporative losses each year. Cochiti Dam’s construction was completed in August 1975, and the dam and most of the reservoir are on Pueblo de Cochiti land. 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 holding back 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, to safely pass flood flows, is limited to 7,000 cfs (determined in Albuquerque at the Central Avenue bridge). 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 (COE)
they have allowed minor deviations in operations at Cochiti. This has provided extra storage of water in order to create releases for pulse flows to promote spawning of the silvery minnow. Also, temporary storage of native water has been allowed to trap water that has been released from El Vado for irrigation in the Middle Valley when a thunderstorm occurs which negates the need for the release. 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.

Elephant Butte Reservoir

Capacity: Two million a-f
Storage Dec. 8, 2010: 400,674 a-f
Responsible agency: Bureau of Reclamation

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 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 Bureau’s Rio Grande Project, delivering water for use under contracts between the Bureau of Reclamation and the Elephant Butte Irrigation District (90,000 water-righted acres in New Mexico) and El Paso County Water Improvement District No. 1 (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 U.S. 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, by means of a diversion facility near Ciudad Juárez. Full Rio Grande Project delivery is 790,000 acre-feet. When a full amount is not available, which is the situation in many years, 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 Interstate Stream Commission is evaluating the operating agreement from a technical standpoint to resolve a number of questions and concerns.

Recreation is also an important function at Elephant Butte. More than one million people annually visit the Elephant Butte Lake State Park. As in most of the

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.

Caballo Reservoir

Capacity: 350,000 a-f flood storage; 50,000 a-f target
Storage Dec. 8, 2010: 21,007 a-f
Responsible agency: Reclamation

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.

reservoirs, there is both compatibility, and at times tension, between recreational uses and the primary purpose – water storage. The size of the reservoir varies widely, depending upon storage levels. Evaporative losses on the lake are estimated at about 10 feet annually. When the lake is full, at 2 million acre-feet, evaporative losses are estimated at 140,000 acre-feet per year (roughly two times the annual use of the city of Albuquerque), leading 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; once was 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.)
Canadian River and Pecos River Reservoirs in New Mexico
Canadian River Basin

**Eagle Nest Reservoir**

Capacity: Approximately 78,000 a-f (maximum); 52,800 a-f (average)
Storage in Nov. 2010: About 75,000 a-f
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 18 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.

**Ute Reservoir**

Capacity: 200,000 a-f conservation storage; 24,000 per year under contract for municipal purposes
Storage in Nov. 2010: 185,000 a-f
Responsible agency: Interstate Stream Commission

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 a-f flood control purposes; 70,500 a-f sediment control; 252,000 a-f conservation storage (irrigation)
Storage Dec. 8, 2010: 83,374 a-f
Responsible agency: Corps of Engineers
Authorization: Emergency Relief Appropriation Act of 1935 (July 29, 1935); Flood Control Act of 1936

Conchas Dam was constructed by the Army 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 35 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. Currently, Ute is nearly full, while Conchas is at one of its lowest levels since the drought years of the 1950s, except for a brief period in the 1970s. Inflow to Conchas is reliant on rainfall and several years of persistent drought have taken a toll. The lake is so low that Arch Hurley cannot withdraw water unless the level comes up, because the elevation of the water surface of the lake is below the irrigation outlet.

Currently, Ute is nearly full, while Conchas is at one of its lowest levels since the drought years of the 1950s.
Pecos River Basin

**STORRIE LAKE**

Capacity: 22,900 a-f

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.

**LOWER PECOS RESERVOIRS**

**SANTA ROSA RESERVOIR**

Capacity: 438,364 a-f flood storage; 92,236 a-f conservation storage (irrigation)

Storage Dec. 8, 2010: 42,743 a-f

Responsible agency: Corps of Engineers


**SUMNER RESERVOIR**

Capacity: 93,828 a-f flood storage; 40,398 a-f conservation storage (irrigation)

Storage Dec. 8, 2010: 19,229 a-f

Responsible agency: Bureau of Reclamation

Authorizations: November 6, 1935; Flood Control Act of 1939.

**BRANTLEY RESERVOIR**

Capacity: 414,466 a-f flood storage; 40,000 a-f conservation storage (irrigation)

Storage Dec. 8, 2010: 9,457 a-f

Responsible agency: Bureau of Reclamation

Authorizations: PL 92-514 (1972)

**LAKE AVALON**

Capacity: 4,466 a-f flood storage; 3,866 a-f conservation storage (irrigation)

Storage Dec. 8, 2010: 2,126 a-f

Responsible agency: Bureau of Reclamation, built in 1907

Santa Rosa Reservoir, Sumner Reservoir, and 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 capacities reflected in this article are 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 the Bureau of 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 (FSID) 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.

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 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
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!* 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.

**Navajo Reservoir**

- **Capacity:** 1,708,600 a-f
- **Storage Dec. 8 2010:** 1,362,627 a-f
- **Responsible agency:** 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 30 miles east of Farmington.

Navajo Dam and Reservoir are owned, operated, and maintained by the Bureau of 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.

After flowing through New Mexico and Utah, the San Juan joins the Colorado River at Lake Powell.
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 ESA issues on the San Juan.

In 2003, in the face of anticipated water shortages, the major water users in the Basin came together and developed a sharing of shortages agreement. PNM, 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 the Bureau of 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. Our intention in updating Water Matters! each year is to provide an on-going record of storage levels and updates on major issues concerning the 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.
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Navajo-Gallup Water Supply Project

In March 2009, the Congress passed and President Obama signed into law the “Omnibus Public Land Management Act of 2009”. This thousand-page law consolidates and authorizes 152 natural resource initiatives, actions, and projects, some of which have been under consideration for several years. Several New Mexico matters are included in the law, notably the authorization of the Navajo-Gallup Water Supply Project, a part of the Navajo Nation water rights settlement for claims in the San Juan River basin within New Mexico.

“Navajo-Gallup” 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 start-up of 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.

In view of the project’s magnitude, this article reviews its major aspects.

Navajo communities and the city of Gallup rely on a rapidly depleting and inadequate groundwater supply.

“...I think the bill will matter a lot to many people... 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
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.

Need for the Project

Navajo communities and the City of Gallup rely on a rapidly depleting and inadequate 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 of more than 43 Navajo chapters, including the Navajo communities of Window Rock and Fort Defiance in Arizona, the City of Gallup, and the Teepee Junction area of the Jicarilla Apache Nation. The approved project will convey a reliable supply of water to these areas by means of diversions and pipelines from the San Juan River.

Many believe that the need for additional water is great. In the Navajo Nation, a poverty rate greater than 50 percent and a growing population – combined with inadequate infrastructure and widely dispersed communities and households – has created an urgent need for adequate water. Between 30 and 40 percent of households on the Navajo Reservation do not have direct access to public water systems, and tribal population is expected to increase to nearly 500,000 by 2040. It has been asserted that economic development, needed to break the cycle of chronic poverty, is largely dependent upon a reliable water supply and water infrastructure.

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 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 economically be made available 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 20 feet per year and water quality is worsening. Local efforts are being made to increase 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 so that tribal members can continue to diversify their economy for on-reservation employment and to 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 number of acre-feet will be less. This allocation is a relatively large share inasmuch as only 3.25 percent of the river’s flow originates in New Mexico. The state’s allocation is intended, in part, to address the needs of the Navajos and other Native Americans in the region.

On behalf of the Navajo tribal government, the United States filed a preliminary Statement of Claims based on a substantial Winters doctrine claim to water in the San Juan: over 900,000 acre feet annually with a priority date of June 1868. The amount is based on practicably irrigated acreage (PIA) and the priority date is the date of the Navajo Reservation’s creation (see Indian Water Rights article this issue). Because the Navajo Nation was not a party to the Colorado River Compact of 1922, its claim has remained unquantified while 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 recent years, however, the
Navajo Nation encouraged the State of New Mexico to negotiate a settlement rather than to litigate to resolve the issues among the various water users in the region.

Settlement Agreement

The Navajo Nation and New Mexico first signed the Navajo Nation Water Rights Settlement Agreement for the Nation’s water rights in the New Mexico portion of the San Juan Basin on April 19, 2005. The United States signed in 2010. Congress passed the Omnibus Public Land Management Act in 2009 which, in pertinent part, ratified the Settlement Agreement in Title X–Water Settlements, Subtitle B–Northwestern New Mexico Rural Water Projects. The settlement agreement was subsequently reconciled with the Act and signed in December 2010.

The settlement’s center piece is the Navajo-Gallup Water Supply 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 basin. The settlement is meant not only to resolve the Navajo Nation’s water rights without litigation, but also to supply water to the City of Gallup, and the Teepee Junction area of the Jicarilla Apache Nation.

Amount of Water

The San Juan River settlement allocates approximately 55 percent of the water available for use in New Mexico from the San Juan River to the Navajo Nation.

Navajo Nation in New Mexico, Window Rock, and between the Navajo communities in Arizona. The City of Gallup does not hold water rights in the San Juan system and must obtain its water from others, possibly the Jicarilla or Apache and Navajo Nations. The City’s allocation is to be charged to city water rights.

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).

The eastern pipeline will begin at the existing Cutter Reservoir, an adjunct of Navajo Reservoir, and it will convey water southward, partly alongside U.S. 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 PNM 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

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.
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. That amount was authorized in the Omnibus Act for appropriation and expenditure by the federal Bureau of Reclamation. 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 of New Mexico is to pay $50 million, some of which has already been contributed.

Concerns
Not everyone in the Four Corners area favors the settlement. Concerns have been voiced about the quantity of water allocated to the Navajos in the settlement. Also, several “non-signers” to the settlement have expressed some remaining concerns. They question the settlement’s hydrological determination, believing instead that there is insufficient water from the settlement. In response, 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. The non-signers are also interested in water-banking storage possibilities in the Navajo Reservoir. Further, the San Juan Agricultural Water Users Association argues that the Nation will market its water downstream to Arizona, Las Vegas, and California. However, the Omnibus Act forbids such transactions without approval from the New Mexico State Engineer.

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, Aamodi and Taos water right settlements. In 2007, Sen. Domenici introduced the Reclamation Water Settlement Fund (S. 1643) which would authorize a 10-year funding schedule to generate an estimated $1.37 billion to pay for the three settlements after they were signed into law. In 2009, Sen. Bingaman included this funding mechanism in the Omnibus Public Land Management Act of 2009. When the Act became law, it established the Fund which 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 offers some potential for the Navajo-Gallup project in 2020.

The Omnibus legislation authorized $87 million for an initial appropriation for the project. The Claims Resolution Act of 2010 appropriated to $60 million for the project in each of fiscal years 2012, 2013, and 2014 for a total of $180 million. In fiscal year 2010, the Energy and Water Appropriations Bill appropriated $3 million for the planning, design and construction of the first phases of the project. In federal fiscal year 2012, the federal executive budget recommendation for the project was $35,188,000.

Related funding includes a November 2009 award of $5.7 million from stimulus funding for the Animas-La Plata Project’s “Navajo Nation Municipal Pipeline.” This pipeline will run about 28 miles and will convey 4,680 acre-feet of treated water from Farmington to the Navajo Nation near Shiprock, New Mexico. In 2012, this pipeline is nearing completion. Other funding will come from the city of 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.
Survey work began in 2010 and construction must be substantially completed by 2024.

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 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 $10 million in bonds to the Board of Finance in June of 2011. Of the amount, at least 8.6 million is to be used for the Navajo Settlement implementation. Thus far, the State has made $13.6 million in cash contributions. In addition, it is expected that the Bureau of Reclamation will credit the State with about $24.5 million, that is, 75% of appropriations already made for clean water supplies for Navajos and non-Indians in the ‘checkerboard’ area. In 2011, the Legislature appropriated an additional $15 million for the Fund. The Legislature needs to appropriate an additional $10 million to complete the State’s contribution for the Navajo project. Any amount remaining unappropriated by the State in 2017 will be indexed for inflation.

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 New Mexico state adjudication court must enter final decrees.

Much of the work required before a shovel enters the ground has been completed. Department of 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 in 2010. The agreement includes the proposed decrees upon which the state adjudication court must act. Many of the required agreements were executed in 2011, including the cost-share agreement between the state and the United States.

The Bureau of Reclamation began survey work in 2010 and pipe is now being laid on two legs of the system: 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. The Bureau of Reclamation is overseeing the project. Construction must be substantially completed by 2024. Officials expect that by 2040, the completed project will provide more than 37,000 acre-feet of water to as many as 250,000 people each year: that is, around 203,000 people in the Navajo Nation, 1,300 people in the Jicarilla Apache Nation, and 47,000 people in the City of Gallup.

Cutter Lateral: The Cutter Lateral will run along US 550 to 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 the community of Counselor to existing distribution system 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 is expected to be awarded in the spring of 2013 and this part of the project could be delivering water in 2015. The Bureau of Reclamation will be responsible 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.
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 Agreement; to be executed by Secretary of Interior by Dec. 31, 2010.
- Secretary and Nation to execute contract by Dec. 31, 2010.
- Court to enter Partial Final Decree by Dec. 31, 2013.

Sec. 10702
- Establishes trust fund for Nation's water resources development, but fund 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 U.S. Treasury, to consist of $120 million plus interest, to be deposited in each of FYs 2020 thru 2029 (from revenues that would otherwise be deposited in Reclamation Fund). Same amounts may be expended in each of those years for the following projects in toto (spending to be in priority order 1 thru 4):
  1. Navajo-Gallup ($500 million total for 2020-2029).
  2. Aamodt & Abeita (in each year, sufficient amount to pay federal share of implementing settlements if annual appropriations 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 Secretary (through Bureau of Reclamation) to design, construct, operate, and maintain the project.
- Requires environmental compliance.
- Requires State of New Mexico to provide $50 million share of construction cost.
- Authorizes conveyance of facilities to Gallup and Nation, under several conditions.

Sec. 10603
- Allows incidental generation of hydro power, with proceeds to Nation.
- Authorizes diversion from San Juan River and Navajo Reservoir: 37,760 a-f, or river depletion of 35,890 a-f annually.
- Authorizes diversion of 6,411 a-f for use by Nation in Arizona [at Window Rock].
- Diversions are to be used in NM and charged against the NM consumptive use apportionment made by Colorado River Compact.

Sec. 10604
- Authorizes a contract between U.S. and Nation. Construction costs applicable to Nation are not to be reimbursed by Nation. O&M costs to be paid by Nation, but may be waived for 10 years.
- Authorizes a contract between U.S. and Gallup. City required to pay allocable share of construction and O&M costs, within 50 year period, except City not required to pay more than 35 percent of allocable share of construction costs. City to provide rights to water received.
- Authorizes a contract between U.S. and Jicarilla Apache Nation. Payment terms similar to Gallup, above.

Section 10609
- Authorizes appropriation of $870 million for FYs 2009 thru 2024 (subject to adjustment) to plan, design, and construct facilities. Additional sums for O&M authorized for ten years following completion.
- Participants’ construction committee to be formed.

Section 10606
- Bureau of Reclamation to assist Nation with construction/rehab of conjunctive use wells; $30 M authorized.

Section 10607
- Bureau of Reclamation to assist Nation with rehab of existing on-reservation San Juan irrigation projects; $23.1 million authorized.
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.

The San Juan Basin Adjudication

As a condition of the settlement agreement and the 2009 Omnibus Act, the New Mexico state adjudication court in the San Juan case must enter one or more final decrees for the Navajo Nation’s water rights. The claims filed by the United States for the Navajo Nation may be viewed at the link provided below. The adjudication court is currently conducting an *inter se* proceeding to take objections and evidence on the agreement. 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. The court will make its decision on whether to approve the settlement and enter the decree(s) by December 31, 2013. If the court does not approve the settlement, it will proceed with litigation.

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AMERICAN INDIAN WATER RIGHT SETTLEMENTS,uttoncenter.unm.edu/pdfs/american_indian_water_right_settlements.pdf.
The Ute Pipeline project, officially known as the Eastern New Mexico Rural Water System, is a 151-mile-long project to augment the domestic water supply of several eastern New Mexico communities. 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.

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 New Mexico Interstate Stream Commission completed construction of Ute Dam and Reservoir in 1962 at a present-day cost of over $125 million.

John D’Antonio, New Mexico State Engineer
Like the Navajo-Gallup project, the Ute Pipeline was authorized for major federal funding by the Omnibus Public Land Management Act of March 30, 2009. This important milestone for the project was reached after about 45 years of effort. Attention now shifts to myriad details of actually constructing, financing, and administering the project.

The main purpose of the project is to address the declines in the Ogallala aquifer.

**Background**

The State created Ute Reservoir in 1962 by damming the Canadian River near Logan in Quay County. The dam’s purpose was to retain the water of the Canadian that New Mexico was allowed under the three-state Canadian River Compact (New Mexico, Texas, Oklahoma). From the beginning there was an intention to use the water by means of a project such as the one now moving forward. The main purpose of the project is to address the declines in the Ogallala aquifer. Currently, withdrawals from the aquifer in the larger regional area are estimated at 249,000 acre-feet per year (afy) and recharge is estimated at 40,000 afy.

To pursue the project, an organization known as the Ute Dam Municipal Water Association was formed, including cities from Tucumcari south to Artesia. Eventually in 1987 a new organization was formed through a joint powers agreement, the Ute Reservoir Water Commission (URWC). Ten years later the New Mexico Interstate Stream Commission (ISC), which “owns” the water in the reservoir, allowed the URWC a first right of refusal on 24,000 acre-feet of reservoir water for other purposes, including supplying water for the “Ute Lake Ranch” community development on the south side of the reservoir. Hence the pipeline project now involves the future delivery of 16,450 acre-feet per year.

**The Project as Planned**

The main water line 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 and the other 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 which 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, as well as the costs of the water itself, depending on how much water each has reserved. Aside from construction costs, the benefited entities can expect to receive water at about $31 per acre-foot.

The current full cost estimate for the project is $500 million. According to Scott Verhines, an engineer and program manager for the project, numerous studies regarding future water supply scenarios for eastern New Mexico show the Ute project to have the greatest benefit/cost ratio. The need for...
the project, now as in the past, lies in the need to reduce the volume of municipally pumped groundwater so as to protect and reduce the drawdown of the Ogallala aquifer.

Numerous projects of this kind in other states have been paid for largely by federal funds. Here the authorized cost allocation is in fact similar to other federally supported water projects – the federal government is to pay 75 percent, with the State paying 15 percent and the ENMRWA members 10 percent.

Legislation and Funding

Initiatives to authorize and fully fund the Ute project began to accelerate about three years ago. At the Congressional level, early in 2008 U.S. Senators Bingaman and Domenici, with then-Representative Udall, introduced companion bills to authorize federal funding up to 75 percent of project cost, based on the then-current estimate.

Hearings were held (following up on a field hearing in Clovis of the Senate Energy and Natural Resources Committee, August 14, 2007), and in June, 2008, the House bill received final passage. The Senate bill passed the Energy and Natural Resources Committee but did not get scheduled for the Senate floor. In the meantime, however, Senator Bingaman, who is chairman of the committee, wrapped the Ute bill and many other bills into the Omnibus Public Land Management Act, which was eventually passed by 2009’s new Congress and was signed by President Obama on March 30, 2009. The Act’s approval of the project (at 123 Stat. 1300) authorized federal funding of $327 million, which indeed represents 75 percent of the 2008 estimate. The actual amount provided will be adjusted, however, to reflect future changes in indices of construction costs. It is anticipated that the project will be constructed in phases, over a period of about ten years.

The other provisions of the Act pertaining to the Ute project are simple in comparison to provisions for the Navajo-Gallup project and the Aamodt settlement, inasmuch as the project does not involve water rights settlements, court approvals, etc. Nonetheless, several federal requirements are spelled out with regard to project financing and engineering design. During 2010, the entities to be benefited by the project have made good progress on these requirements, as discussed below. It is important to realize that the Ute project is basically not a federal project; it will be built, owned, and operated by the 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. Following project approval, annual funding is and will be done through federal budget processes (with funds administered through the Interior Department, Bureau of Reclamation). The 2010 Energy and Water Appropriations Bill, signed by the President on October 29, 2009, appropriated $1 million for design and initial construction of the intake structure at Ute Reservoir. As of December 2010, it was not clear how much would be appropriated for FY 2011.

At the State level, project money has been provided by the New Mexico Legislature in each year from 2006 to the present. In 2006, $1.25 million was appropriated.

It is important to realize that the Ute project is basically not a federal project; it will be built, owned, and operated by the participating local governments.
Incidentally, the creation of the Water Trust Fund and Board in New Mexico is in no small part owed to the early planning and fact-finding efforts on the Ute project, dating back to 2000/2001.

Then, in 2007, the governor’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 New Mexico Water Trust Board. In 2008, the Legislature approved $4.5 million, also through the Board. These last appropriations required 20-percent local participation in accordance with Board policy – the local entities must pay 20 percent of the amounts specified by the Legislature. In 2009, another $4.4 million was appropriated, and the local participation required was reduced to ten percent. In 2010, another $2.9 million was provided. Altogether, the Legislature has provided $19.3 million for front-end planning and engineering services. These monies will be counted as part of the State’s 15 percent participation.

Pre-Construction Activities

Since project approval in 2009, the Ute project has been gathering momentum. For one thing, the project 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. The legislation (HB 15) passed unanimously, establishing the Authority as a political subdivision of the state. The Authority is a more formal and stable organization, enabling the participating local governments to begin setting up specific procedures for their financial participation – such as revenue bonding procedures and user rate schedules. This type of organization is also needed if the project’s bonds are to appeal to financial markets.

The Authority has a seven-member Board appointed by the project-area’s communities and county governments. As such, 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 Memo of [financing] Agreement between the Board and the Bureau of Reclamation is also nearly completed. This will be followed from time
to time by individual cooperative funding agreements for each phase of construction.

As for project planning and engineering, the standard “30-percent design” was completed in 2009, followed by a “value engineering” process. The Bureau of Reclamation completed a Design Estimates and Constructability (DEC) review. In parallel, federal Environmental compliance has been addressed, with preparation of an Environmental Assessment (EA) and a Biological Assessment. Final approval of both documents is imminent.

With these activities complete, June 2011 is the goal for start of construction on the pipeline’s water intake structure.

Meanwhile, the Albuquerque consulting firm of CH2M HILL was authorized to conduct a feasibility study for a wind energy plant, the revenues of which might help offset the pipeline project’s cost. 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’s 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 has also been considered but is not now being closely investigated. 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 thought to be too expensive at present.

**Water Trust Board**

Incidentally, the creation of the Water Trust Fund and Board in New Mexico is in no small part owed 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 – picked up the ball and ran with it. Over the next two years the Water Trust Fund and its managing Board became realities.

Revised by Jerold Widdison, through December 15, 2010
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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, with 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 the Piñon Creek. Flowing from the Sacramento Mountains, these streams rapidly sink into 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 was begun 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, sometimes, on the New Mexico side of the state line.

“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 Stell, former member of the New Mexico House of Representatives
Concern for water supply led the New Mexico State Engineer to declare the “Salt Underground Water Basin” in 2000.

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 (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, administered by the 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 New Mexico 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.

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 New Mexico 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, 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 al-
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.” At present, BLM has not completed work on such an alternative.

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 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 the meantime, three applications for water rights are pending at the Office of the State Engineer – all of which have received protests.

Federal Legislation to Date

The New Mexico 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 (Public Law 111-11, Section 11002) called for continuation of the USGS study efforts, which deal with the questions pointed out in the above-mentioned 2006 report. The studies are to be completed by 2011, assuming timely funding.

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. 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 2010 drew to a close, the future of the Salt Basin remained quite unknown.

By Jerold Widdison, Updated (2010)

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WILDERNESS SOCIETY, THE BLM’S RESOURCE MANAGEMENT PLAN AMENDMENT FOR FEDERAL FLUID MINERALS LEASING AND DEVELOPMENT IN SIERRA AND OTERO COUNTIES: RISKS TO WATER QUALITY AND NEED FOR MORE ANALYSIS AND PROTECTION.

Stefanie Beninato, Ph.D., J.D.

Brigette Buynak, J.D.

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The Gila River

The Gila River begins in New Mexico’s Gila Wilderness, and ends on the far side of Arizona – where it joins the Colorado River. In both New Mexico and Arizona, the river has for many years been a source of controversy. The Gila’s major tributary, the San Francisco River, originates in Arizona, flows through forested lands in New Mexico, then crosses into Arizona again to join the Gila River near the mining town of Clifton. New Mexico communities along the San Francisco are few and very small: Luna, Reserve, San Francisco Plaza, Alma, Glenwood, and Pleasanton.

The Gila River is highly prized by the citizens of New Mexico, neighboring communities, conservationists, and other people who love and appreciate the wilderness. But longstanding differences still exist between those who would like to have the Gila River remain in its current state without a major development project and those who would like to see its waters dammed or diverted for other uses.

“Putting the Gila River’s water to beneficial use does not mean we have to dam it; it means we need to put it to beneficial use. There are many ways to put water to beneficial use.”

Representative Andy Nuñez
However, the 1968 Act required that any water development in New Mexico would be junior to existing uses in Arizona.

A Century of Arguments
Non-Indian settlement of the Gila and San Francisco watersheds began in the 1870s, following the defeat of the Apache inhabitants. Many more settlers came into the Gila Valley in Arizona than into New Mexico, but in both territories the settlers started to use the river for irrigation farming. Some of the settlers pioneered the small Duncan-Virden Valley, which was split by the boundary between the two territories. Soon the Arizona irrigators began to complain about the New Mexico irrigators using too much water. Arguments among water users, both within Arizona and between Arizona and New Mexico irrigators, continued for years, even after a court-imposed settlement took effect in 1935.

Then in the 1960s, Arizona sued California regarding use of the waters of the Colorado River. The Gila River is a tributary of the Colorado and New Mexico reluctantly became a party to the lawsuit. In 1964, the U.S. Supreme Court decided the case, Arizona v. California, 376 U.S. 340 (1964), and limited New Mexico’s annual water depletions in the Gila Basin to approximately 30,000 acre-feet. Because of the 1950’s drought, a few anomalous floods, and irrigators’ service in the Korean conflict, much of the over 22,000 acres of previously irrigated lands in the Gila Basin in New Mexico were fallow at the time. Although the special master in that case, Samuel Rifkind, granted Arizona and California water in excess of their current usage, he limited New Mexico to demonstrable current usage and allowed for very little future increase. In his report to the Court, Rifkind did include a proviso that if conditions in New Mexico should change, New Mexico could argue for increased apportionment.

Not long thereafter, the Colorado River Basin Project Act of 1968 became law. It authorized the Central Arizona Project (CAP) and also provided New Mexico the opportunity to develop an additional 18,000 acre-feet of water from the Gila Basin per year. The CAP is a multipurpose water development project that delivers Colorado River water into central and southern Arizona. The project was designed to relieve groundwater pumping and provide water to nearly one million acres of Indian and non-Indian irrigated land in Arizona, as well as southern Arizona municipalities, including Phoenix and Tucson.

New Mexico’s congressional delegation supported the final vote on the CAP legislation. The price of New Mexico’s support was the authorization and inclusion of the additional Gila water for New Mexico. However, the 1968 Act required that any water development in New Mexico would be junior to existing uses in Arizona. Because the Gila River does not provide for full rights in most years, and is subject to adjudicated administration, this has created a difficult hurdle for New Mexico.

Gila River Development Proposals in New Mexico
Meanwhile, New Mexico citizens and politicians had long proposed the construction of a dam and reservoir on the Gila. They intended to provide a more reliable water supply for the land that was already irrigated from the river in New Mexico, and to add more irrigated acreage. Of several dam sites that were proposed, the “Hooker Dam” site became the one most favored. In 1946, the Bureau of Reclamation had recommended that Hooker Dam be built in a canyon where the Gila emerges from the Mogollon Mountains, approximately at the boundaries of the Gila National Forest and Gila Wilderness. Half a dozen alternative sites were considered, but all were rejected except possibly Connor Dam site some 30 miles downstream from the Hooker site.
Hooker Dam was authorized by the CAP legislation, even though it was less than essential to the larger project. It would help regulate the Gila flow, thus somewhat benefiting both Arizona and New Mexico water users. Of course, Arizonans did not like the idea of retaining water in New Mexico.

Hooker Dam was a huge source of controversy. Considered by its proponents to be the means by which the Gila River could bring greater prosperity to southwestern New Mexico, it also attracted the attention of many who would protect the river and its environment from development. The Wilderness Society and the Sierra Club, among other organizations, were concerned that the reservoir’s inundation of a part of the Gila Wilderness, a unique and valuable ecological region and the first such designated Wilderness in the United States, would presage even more serious invasions of wilderness areas elsewhere. Finally, in 1977 the would-be Hooker Dam was killed.

The Arizona Water Settlements Act of 2004

After four years of negotiations between New Mexico, Arizona and Arizona water users, the Arizona Water Settlements Act of 2004 (AWSA) was approved by Congress and signed into law. In the main, this complex statute settles some major Indian water rights issues in Arizona, limits Arizona’s repayment obligation for the CAP, and provides for several infrastructure improvements in Arizona. In addition, Title II of the Act offers a new procedure – together with federal funding – by which New Mexico might make use of the Gila water that had been authorized in 1968.

First, the 18,000 acre-feet annual allocation was reduced by the Act to 14,000, to “. . . permit consumptive use in New Mexico . . . not to exceed an annual average in any . . . 10 consecutive years of 14,000 acre-feet (an average of 10,000 acre-feet annually for the Gila River and 4,000 acre-feet for the San Francisco River) including reservoir evaporation.” The Act also authorizes at least $66 million of non-reimbursable federal funds for any projects that meet a water supply demand in New Mexico. These funds may be used for a diversion project or any other water utilization alternatives that meet water supply demands in the Southwest Water Planning Region, including the construction of facilities, environmental planning, environmental compliance activities, mitigation, and stream-and-watershed restoration. The money is to be paid at $6.6 million each year for ten years, starting in 2012.

Moreover, as much as $62 million more may be provided if New Mexico water users choose to execute a contract to develop a project or projects to use the additional 14,000 acre-feet provided in the 2004 Act. The 2004 Act designates the New Mexico Interstate Stream Commission (ISC) as the administrative agency for all those funds. Any expenditure of funds must be approved by the ISC in consultation with Southwest New Mexico stakeholders.

Two contractual agreements are specified by the Act as mechanisms for accomplishing the authorized activities: (1) The Act ratifies a “Consumptive Use and Forbearance Agreement” (CUFA), which is a contract between Arizona, various water rights holders, and the U.S. Secretary of the Interior and approved by New Mexico. It enables New Mexico to develop the additional 14,000 acre-feet of Gila Basin water without objection by the Arizona parties. Pursuant to CUFA, the Secretary, through the Bureau of Reclamation, may provide additional CAP water to users in Arizona in exchange for diversions made by users in the Gila Basin in New Mexico. To
fully protect Arizona users, New Mexico must allow certain minimum flows (bypass flows) to enter Arizona each day of each year. Also, New Mexico users cannot divert water unless there is at least 30,000 acre-feet in Arizona’s San Carlos Reservoir.

(2) The “New Mexico Unit Agreement” (NMUA) will be executed between the Secretary of the Interior and New Mexico officials at such time as New Mexico decides upon a project or projects to use or “develop” the additional water. Such a project is to be called the “New Mexico Unit of the CAP.” If New Mexico decides on such a project, it must provide notice no later than December 31, 2014 that it intends “to build the New Mexico Unit.” At that time, an additional federal subsidy of between $34 and $62 million (depending on interest rates earned by the Lower Colorado River Development Fund) will be provided to New Mexico.

Environmental Compliance, Ecological Values

The Arizona Water Settlements Act states that planning activities and any eventual project shall comply with the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and all other pertinent environmental requirements. The
Gila in New Mexico supports a wide variety of plant and animal life, and its rare species call into play the Endangered Species Act. The watershed’s federally endangered species include the southwestern willow flycatcher, the Gila trout, the Gila topminnow, and the Gila chub (proposed). Federally listed threatened species are the Chiricahua leopard frog, the bald eagle, the spikedace and the loach minnow. The status of the spikedace and the loach minnow was down listed from threatened to endangered in February of 2012. A number of other species are state-listed, such as the common black-hawk, the roundtail chub and the Mexican garter snake. The roundtail chub is currently being reintroduced to some area waters by the New Mexico Department of Game and Fish. Several national, regional, and local organizations have long been involved with environmental matters in the Gila area, and they are currently participating in the Southwest New Mexico Stakeholders Group as well as conducting their own activities. The Nature Conservancy, for example, owns over 1,200 acres along the river in the Gila-Cliff area and holds Forest Service grazing permits for acreage in the Gila watershed within the Gila National Forest. It is undertaking habitat restoration work in these areas. The Nature Conservancy has also worked with the State and the Bureau of Land Management to protect land in the river’s Lower Box area and elsewhere in the watershed. Other environmental groups, such as the Gila Conservation Coalition and Center for Biological Diversity, are also heavily involved. Environmental improvements using the allocated funds may be in the offing for the San Francisco River area. To date, the San Francisco has not figured prominently in the planning effort, but interest there centers on possibilities for watershed restoration in some woodland and forested portions of the watershed. Restored areas may yield more water to streams, or may contribute to changes in the timing of runoff that result in greater perennial flow in some cases, depending on the type and magnitude of treatment and climatic conditions.

Continued evaluation of environmental concerns will be an important part of the AWSA planning process. Full compliance with NEPA and the ESA will be required prior to construction of any project.

The Nature Conservancy has also worked with the State and the Bureau of Land Management to protect land in the river’s Lower Box area and elsewhere in the watershed.

Current Undertakings
Planning activities in New Mexico’s Gila area began shortly after the enactment of the Arizona Water Settlements Act. The Southwest New Mexico Stakeholders Group was established in 2007 to collaboratively design, oversee, and implement a process to provide for planning and decision-making that will lead to proposals for utilization of AWSA water and/or funding. The membership of the Southwest New Mexico Stakeholders Group included a broad array of interested citizens, interest groups and agencies, including several county governments, agricultural groups and environmental groups. The Southwest New Mexico Stakeholders Group committees included communication, technical, implementation, and other subcommittees.

In addition to this group, the Gila San Francisco Water Commission continues to consider implementation of a project or projects under the AWSA. The Commission is a body of elected officials from the four county area that is operating under a Joint Powers Agreement. Members include Catron, Grant, Hidalgo, and Luna Counties, all incorporated municipalities except for Silver City, and all Soil and Water Conservation Districts in the four county region. Silver City chose not to participate.

During 2009, a Gila Science Forum was convened to identify, discuss, and recommend (1) ways of determining the potential effects
of flow modification on the Gila River aquatic and riparian resources (including risks and uncertainty), and (2) how information gleaned from such efforts might be integrated to provide an ecosystem-based assessment of the effects. Systems dynamics modeling that integrates stakeholder values, legal constraints, and possible water management policies was recommended for future model refinements.

An inventory of publications was completed in 2009 to facilitate easy access to relevant scientific information and to help with good decision making. The publications were grouped by subject area and are available on the Arizona Water Settlements Act Planning Process website. Also during 2009, phase I studies to improve the technical knowledge

Those in opposition to diversion of additional Gila water argue that given the population in the region, sufficient additional sources of water are available without the development of the Gila River waters.

data, get input, and improve the model construction.

Regional Water Demand

Those who oppose diversion of additional Gila water argue that, given the population in the region, sufficient additional sources of water are available without the development of the Gila River waters. They believe conservation and off-river wells are viable mechanisms for meeting projected regional water demands. Additionally, Freeport-McMoRan, Inc. (formerly Phelps-Dodge Corporation) owns a substantial number of water rights which may be available in the future once mining activities cease. Concerns over this approach center on continued dependence on non-renewable groundwater supplies, and the reduction of base flows in the Gila River. The on-going planning will result in base-line studies to identify current and future water supply and demand conditions and the consequences of each.

A Way Forward

By 2014, the state of New Mexico must provide a well thought out proposal to the Secretary of the Interior if it is to develop the additional water apportioned in the Act. It will be a challenge to find a consensus set of viable recommendations by that date.

Efforts are being made to address a wide range of water supply/demand management alternatives to meet future water needs, rather than focusing only on diversion alternatives. The Stakeholders planning process has resulted in some proposed projects that do not involve a dam. The possibilities being considered have to do with how to “divert” the allocated water without constructing a dam, such as through off-river well fields, construction of off-channel ponds and reservoirs or a combination of projects. Other possibilities would use the water for municipal purposes in the Silver City/Mining District or Deming; for habitat/watershed restoration; or for supplemental irrigation water. In the fall of 2009, the Southwest New

Sandia National Labs has developed a user-friendly, computerized water model based on parameters in the CUFA. The model portrays and tests technical aspects of the Gila River system – its runoff, rainfall, tributary flows, irrigation components, as well as many other factors. Sandia Labs worked cooperatively with the Southwest New Mexico Stakeholders Group to identify available
Mexico Stakeholders group asked stakeholders in the region to bring forth their ideas for viable projects under the Arizona Water Settlement Act.

These activities are consistent with the intent of the U.S. Senate’s Energy and Natural Resources Committee which stated in its report accompanying the Arizona Water Settlements Act: “Any consideration of water use under [Title II] Section 212 will be accompanied by the consideration of a full range of alternatives that apply to address water supply needs in southwest New Mexico.”

In the spring of 2011, the Interstate Stream Commission began an internal review of the projects proposed by the Stakeholders group and others. The ISC established an internal evaluation panel composed of representatives from the Environment Department, the Department of Game and Fish, the Energy, Minerals and Natural Resources Department, and the Office of the State Engineer. One representative of the Stakeholders group was permitted to observe the panel’s deliberations.

In February of 2012, the ISC approved a set of sixteen potential projects to analyze for implementation under the AWSA. The list included three diversion projects and thirteen non-diversion projects. One diversion project, the proposed piping Gila River water to Deming, has been withdrawn due to the anticipated high cost. The ISC has authorized a $100,000 study of municipal water conservation and $1.45 million study to analyze a regional water distribution system between Silver City and Bayard. In response to the devastating fires in the Gila and the San Francisco Basin watersheds, the ISC approved in September 2012 $100,000 to fund reseeding burned areas. Additionally, Catron County’s proposal for watershed restoration and irrigation system improvements, which was not originally approved for further study in February, was revised and is being considered for AWSA funding by the ISC.

The ISC has now established an Input Group made up of interest groups’ representatives selected by the ISC. The Input Group meets privately on a quarterly basis. The interest groups represented are counties, municipalities, environmental groups, ranchers, farmers, business interests, and mining interests. Recreation interests are not represented on the Input Group.

Members of the Stakeholders group and others have and continue to express concern about the transparency and fairness of the ISC’s internal evaluation processes. The ISC asserts that the evaluation panel and the Input Group must be allowed to have private candid debate, free from the influence or scrutiny of interested or affected parties. In response to criticisms that the ISC is deliberating in private, it has funded the development of a public website where it will post information on its actions, activities, work plans, reports, and studies. The ISC also presents progress reports to the public in quarterly meetings.

In January of 2012, the Bureau of Reclamation transferred to the ISC the first installment of the federal funds promised under the AWSA. Adjusted for inflation, the disbursement put $9.04 million into the New Mexico Unit Fund. ISC budgeted $150,000 from this fund to cover staff salaries and costs in 2012. The amount budgeted for staff will increase to $264,000 in 2013. The ISC has also budgeted $1.5 million for the assessment of proposed projects. The Bureau of Reclamation has agreed to fund the appraisal studies of diversion and storage projects.

The ISC hopes to have completed all the necessary studies of proposed projects by
April, 2014. It will then make a preliminary decision on projects in August, 2014 and select final projects in November, 2014. It plans to accept public comment prior to submitting its notice to the Secretary of the Interior in December, 2014.

By Jerold Widdison (Oct. 2008).
Updated by Joanne Hilton, Hydrologist, Susan Kelly, Esq. (2009)

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Brigette Buynak, Esq.
Craig Roepke, New Mexico Interstate Stream Commission, Memorandum on the Gila Planning Process to the Interim Committee on Water and Natural Resources, July 27, 2011.

The “Aamodt case” is a complex, long-running adjudication of water rights in the Pojoaque River watershed north 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., 6:66-CV-6639 (D.N.M.). The parties include the state through the State Engineer, it includes about 5,600 non-Indian claimants, four Pueblos, other 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 law rights of non-Indians and government agencies for irrigation, domestic, and commercial uses as well as the federal law rights of the Pueblos to historic, present and future uses.

The Claims Resolution Act became law in December 2010. The Act covers several settlements including water rights claims of the Pueblos of Nambé, Pojoaque, San Ildefonso and Tesuque. It authorizes the 2006 Settlement Agreement between the Pueblos, the State, Santa Fe County, the City of Santa Fe and local water users, and provides funding to implement the Settlement.

The court and the parties continue to adjudicate claims of non-Indians. They are currently working on the priority of one acequia and on the domestic well rights. The court must enter a final decree by September 15, 2017.

Background for the Adjudication

Aamodt has its roots in the planning for the San Juan-Chama Diversion Project during the 1960s. These plans allocated modest quantities of San Juan-Chama (SJ-C) imported water to several separate watershed areas that feed into the Rio Grande. The Rio Pojoaque Basin was one of the “tributary irrigation units”. These watershed areas received the proposed new water by diversion from the Rio Grande or by substitution and/or exchange.

As a part of the SJ-C Project, infrastructure projects were proposed for the tributary units. All except the project in the Rio Pojoaque Basin 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

In November, 2010, the Congress passed the Claims Resolution Act of 2010 and on December 8, President Obama signed it into law.

“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
Pojoaque Valley Irrigation District and the pueblos of San Ildefonso, Nambé, and Pojoaque.

In order to properly distribute and account for the imported Project water, the Office of the State Engineer initiated water right adjudications to create water use inventories on each of the major watershed’s tributaries to the Rio Grande. In 1952, Congress passed the McCarran Amendment, 43 U.S.C. § 666 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 these tributary cases were filed in federal court.

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

Pojoaque Creek Watershed
(*Aamodt Adjudication*)

By Jerold Widdison
for the Utton Transboundary Resources Center.
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.

**Aamodt**

The *Aamodt* case was the first of the major tributary watershed adjudications to be filed in New Mexico. The Office of the State Engineer [hereinafter OSE] finished the hydrographic survey of non-Indian surface water rights and filed it with the federal court shortly after the case was begun in 1966.

**Non-Indian Claims**

The elements of non-Indian water rights are determined under state law. These rights have a priority of either 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 should also be adjudicated. Consideration of these claims began in the 1980s and continues today. The court has entered subfile orders for most of the pre-1983 well rights and the focus is now on post-1982 domestic well rights and the remaining pre-1983 domestic well rights.

The court has limited water use in some 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 identified at that time joined this settlement.

The elements of non-Indian water rights are determined under state law.

**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 District 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 foundation for determining the Pueblos’ water rights. Pueblos have primarily grant lands 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 purpose of the reservation. For reservations created for

The court has entered subfile orders for most of the domestic wells.
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 and were never a part of the public domain, and because of how they were handled under the Treaty of Guadalupe Hidalgo.

Under *Aamodt* rulings, the Pueblos were also entitled to replacement water rights for lands lost under the 1924 Pueblo Lands Act proceedings. After several years of inconclusive litigation over replacement issues, in 2000, the parties turned to settlement negotiations.

Settlement

The *Aamodt* settling parties, seven governmental entities including the state and representatives from the non-Indian community, began talks 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 work on the non-Indian communities’ concerns and removed the mandatory provision for water system hookup. In 2006, the signed settlement was sent to Congress.

The Settlement Agreement

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. In 2010, Congress passed the Claims Resolution Act, which approved the *Aamodt* and other settlements, and the President signed it into law. The parties have conformed the 2006 Settlement Agreement to the Act and, as of January 2013, it is being circulated for signature.

The key provisions of the *Aamodt* settlement include:

- Constructing Regional Water System
- Providing non-Indians 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

agricultural purposes, that measure is 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 grant land water rights because these lands have always been owned by the Pueblos, were never a part of the public domain, and because of how the Treaty of Guadalupe Hidalgo treated citizen owners of land. 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 since pre-European time, 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 grant lands before anyone else, unless the Pueblo and non-Indian communities make other arrangements.

The court also held that the Pueblos’ irrigation rights within the grant lands 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 and so the legal merits have never been reviewed by a higher court.
• Closing the basin to new water right development following the court’s approval of the settlement
• Metering all water uses in the basin
• Limiting Pueblo water use
• 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 (a/f/y) for Pueblo consumptive use. It also allows Santa Fe county to “piggy back” onto the system for up to 1,500 a/f/y to serve existing non-Indian domestic well owners who choose to connect to the system and all future water users. The county must make its sizing decision by 2017. Water 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.) The Bureau of Reclamation will build the system.

The imported water is important to both Pueblos and non-Indians because it will reduce the current stress on the local aquifer by increasing the amount of surface water available and reducing dependency upon 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 works, 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 the available groundwater resources.

Project Authorization/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 will be 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 of 2009. This fund, when originally proposed in 2007, was intended to serve as the major federal funding vehicle for the three Indian water rights settlements in New Mexico and Navajo, Aamodt, and Abeyta (Taos). The fund offers some potential 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 2010, the Legislature set aside an additional $15 million. The State’s total contribution

The majority of the funding is for construction of the Regional Water System and for acquisition of water rights.
will be $130,040 million in un-indexed dollars for the three settlements, and will require appropriations for the next several years.

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
- Allocates over 6,100 acre-feet of water to the Pueblos with various priority dates

With Congressional approval and funding, implementation of the settlement and construction of the Regional Water System have begun. The Bureau of Reclamation has developed implementation plans, schedules and milestones. It meets regularly with the settlement parties and public as they work out the various agreements and processes required to carry out the project. The settling parties have completed revising the settlement agreement to conform with the Act and the Cost Sharing and System Integration Agreement. Other necessary agreements, partial final decree and interim administration order are in progress. The agreements are now circulating for signature.

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 decree before the court decides whether to enter it.

Some non-Indians are opposed to the settlement. They are concerned about the new system’s water delivery costs, property tax implications, regulation 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 with-
drawals. 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 ends 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 U.S. District Court and undergo any subsequent appeals.

**Project Construction**

The Bureau of Reclamation is building the Regional Water System. In September 2012, Reclamation awarded the contract for developing the Environmental Impact Statement to EMPSi, an environmental management and planning business with offices in Santa Fe. In early 2013, the Bureau of Reclamation will begin collecting engineering and design information in the Pojoaque Basin. Public scoping meetings will start in April 2013. The Bureau of 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.

*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.*

*Updates by Susan Kelly, Esq. and Jerold Widdisonin (2010)*
*Darcy S. Bushnell, Esq. (2011–2012)*
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Taos Settlement

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, 2010, the Congress passed the Claims Resolution Act and on December 8, President Obama signed it into law. The 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.

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 water rights were much more difficult to quantify than the non-Indian rights. Federal law provides that, unlike New Mexico state law

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)
water rights, Indian water rights are not limited to the amount of water continuously put to use. But 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 an 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 State Engineer’s office 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 State Engineer’s office 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 forty 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 has agreed to offer the Town of Taos the first opportunity to purchase any water that the Pueblo intends to market.

The Pueblo may continue to use 315 acre-feet per year (afy) of groundwater presently withdrawn from twelve municipal and industrial wells, 76 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, which the hydrological model attributes the decline to Town wells and EPWSD 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 purchase 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 reflect 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.

Funding and Legislative History

In late November, 2010, the Congress passed the Claims Resolution Act which, among other things, included a section that addressed the Taos Indian Water Rights Settlement. President Obama signed the Act into law on December 8, 2010.

The 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 fully implement the settlement.

The State of New Mexico will contribute approximately $20 million to the effort. 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 in 2009, withdrew the funds 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 2011, The Legislature appropriated an additional $15 million for the fund in 2011. The total amount of money needed for the State’s contribution to the Aamodi, Navajo, and Taos settlements will require significant appropriations for the next several years.

As a first step in implementing the settlement, the settling parties have completed the reconciliation of the settlement agreement and all its attachments with the settlement Act. As of December 2012, the agreement is being circulated for signature.

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 2,621 acre-feet of San Juan-Chama contract water to the Pueblo (2,215) and to the other settlement parties (406).
- Provides approximately 12,000 acre-feet of total water depletion rights per year 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.” The federal share of total costs is 75% for which the U.S. will not be reimbursed. The non-federal share can 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.
- Authorized funding for grants to non-Pueblo entities for Mutual-Benefit Projects.

In 2009, Congress authorized the “Water Settlements Fund” in the Omnibus Public Land Management Act of 2009. This fund, to be managed by the Bureau of Reclamation, is intended to serve as the major federal funding vehicle for the three Indian water rights settlements in New Mexico (San Juan River/Navajo, Aamodi,
and Taos (Abeyta). As enacted, the fund offers some potential for supplemental money for Abeyta beginning in year 2020.

Construction Phase

Pursuant to Title V of the Claims Resolution Act of 2010 (P.L. 111-291), Reclamation’s Albuquerque Area Office is working on implementing Reclamation’s responsibilities under the Taos Pueblo Indian Water Rights Settlement. The Federal Team is working with the local settlement parties to complete the execution of the Taos Pueblo Indian Water Rights Settlement Agreement. Reclamation has entered into San Juan-Chama Project (SJCP) 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 2012 at a ceremony at Taos Pueblo. Reclamation has also been working with the local parties to assist in the planning and design some of the Mutual Benefits 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.

By Paul Bossert, J.D.

Updated by Jerold Widdison and Darcy S. Bushnell, J.D. (2010-2012).

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American Indian Water Right Settlements, uttoncenter.unm.edu/pdfs/American_Indian_water_right_settlements.pdf.

Water Litigation in the Lower Rio Grande

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 [hereinafter Mexico] and the United States of America [hereinafter 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 [hereinafter 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. Later in the late 1920’s and early 1930’s, Colorado, New Mexico and Texas negotiated the 1938 Compact that allocated the surface waters among themselves.

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. 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. The area is a prime agricultural center for the state, producing pecans, peppers, onions, alfalfa, hay, cotton and other row crops. The tourism industry and the water-related recreation at the Elephant Butte Reservoir and the Caballo Reservoir are important to the entire state. The New Mexico State University [hereinafter 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.

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) [hereinafter *N.M. v. EBID*] in the New Mexico Third Judicial District.

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

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Court [hereinafter adjudication court] and the New Mexico v. United States, et al., D.N.M. 11-CV-691 (2011) [hereinafter N.M. v. U.S.] in United States District Court of New Mexico [hereinafter 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 - and 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 [hereinafter CIR) for all crops; 2) the groundwater rights of the Elephant Butte Irrigation District [hereinafter 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 [hereinafter 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

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,” [hereinafter Operating Agreement] was negotiated among EBID, El Paso County Water Improvement District No. 1 [hereinafter 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
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 [hereinafter 1906 Convention] between the United States and the Mexico defines each country’s share of these waters. 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.

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.

When Spanish settlement began in New Mexico in 1598, eighty-one inhabited
As water uses along the Rio Grande increased, shortages also increased, affecting farmers as far south as El Paso and Juarez.

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 the 1800’s, Colorado settlers had developed thousands of acres of farmland in the San Luis Valley with extensive irrigation works.

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.

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. 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.

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 the 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.

Then in 1904, the 12th International Irrigation Congress, made up of engineers, government officials and the U.S. 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.

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 formed to work with the Reclamation Service on the operations and to pay for the costs of the construction and the 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. In 1923, Congress changed the name of the Reclamation Service to the Bureau of Reclamation.

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.

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.

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.

Today, the facilities of the Rio Grande Project include two storage dams, six diversion dam, 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.

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 1940’s and 1970’s period, during which water levels rose to historic averages or above only five times. In the 1950’s 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 individual 700 wells, the farmers were able 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

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

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 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 the 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” the several groundwater basins beneath the lower Rio Grande stream system between 1961 and 1982.35 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 which serve only one household or
livestock. As of the spring of 2010, about 2,500 wells had been metered.\textsuperscript{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.\textsuperscript{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% and western Texas would receive 43% 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.”\textsuperscript{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 has authority over the Compact water.\textsuperscript{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 1920’s 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 which 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.\textsuperscript{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.\textsuperscript{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 which 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...
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.

Obligations to Texas and keep some water flowing to the New Mexico farmers.

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 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.

Until 1951, the Bureau of Reclamation delivered an equal amount of water per acre to the farmers, as it was ordered. If it was 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.

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 which 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.

From the mid-1980’s until 2008, Bureau of Reclamation operated the Project using allocation procedures that 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.

During the full-supply years, the Bureau of Reclamation allocated 495,000 acre-feet to EBID, 377,000 acre-feet to EP No. 1, thus maintaining the historic 57% - 43% 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. 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.

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. 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.

The 2008 Operating Agreement: When water-short conditions reappeared in 2003, the districts and the Bureau of 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. 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 downstream state. The districts and Reclamation crafted and signed an operating agreement on February 14, 2008 which will remain in effect until December 31, 2050.

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 which grandfathered in thousands of acre-feet of New Mexico groundwater pumping. The Operating Agreement provides that any pumping depletions which exceed the 1951-1978 levels are to be offset by reducing EBID’s Project surface water allocation.

The Agreement also includes for the first time, carryover accounts for EBID and EP No. 1. Each district may carryover 60% 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 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. Most recently, changes have been made regarding calculations of river efficiency due to drought conditions and a credit to EBID for the City.
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 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 has authority over the Compact water. EBID is in Compact Texas for purposes of the Rio Grande Compact and surface water, 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.

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 [hereinafter OSE] is responsible for the technical information about the claims and publishing it in a hydrographic survey. 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 of 2012, the State has made legal service upon approximately half of the

Subfile Determination: In December of 1997, the State re-filed the adjudication suit in the state court in Las Cruces. Since that time, the work of the court and parties has been divided into 2 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. 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 [hereinafter OSE] is responsible for the technical information about the claims and publishing it in a hydrographic survey. 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 of 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 of 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 issue 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 [hereinafter CIR] and farm delivery requirements [hereinafter 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 which 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

Determining these factors occurs in all water right adjudications and is necessary to determine 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 on 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 [hereinafter NMPG] and numerous other parties regarding to 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 which 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 [hereinafter 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.

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. 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.

The second stream system issue (commonly referred to as “issue 102”) addressed EBID’s claim to underground waters for 90,640 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.

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.

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.

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. 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. 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.

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 1890’S. 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 which 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

Shortly after the announcement of the Operation Agreement in 2008, the State of New Mexico began to have concerns which revolved around EBID’s Project allocation in full-supply years and related groundwater depletions.

are being negotiated.85 Successful negotiations result in locally crafted solutions to issues which 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 which 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 are also unfairly absorb the losses from Texas pumping.86 The district responds 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 notes that, in addition to Texas depletions, the district is also carrying depletions by New Mexico pumpers located outside the district.87

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, the Bureau of 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 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. 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 the Bureau of Reclamation to conduct the necessary studies to ensure that the area has sustainable water sources for the long term. The federal court denied, without prejudice, the Middle Rio Grande Conservancy District's motion to intervene on the credit water issue. The Conservancy filed a motion to reconsider and awaits the court's decision.

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, that Reclamation did not fully address the environmental impacts during the NEPA process.

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% to about 38%. It claims that EBID members now receive one third less water that they received historically. The State calculates the value of that reallocated water to be in the millions to billions of dollars.

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 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 district 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.

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 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.

EBID responds that it employs a strategy of using surface water when it is available and reserving groundwater for times when surface water is not available.
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. 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.

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. 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.

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 5 years horizon is inadequate in this case.

In November of 2013, the U.S. District Court heard argument on motions to dismiss all or part of the case before it. No decisions have 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’ 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. 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 than in litigation and the opportunity is before us.
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| Autobee, supra, at 22-23 (between 1925 and 1980, silt reduced Elephant Butte’s capacity from 2,638,000 acre-feet to 2,110,298 acre-feet); Rio Grande Project, Facilities Description – Elephant Butte Powerplant, BUREAU OF RECLAMATION (May 16, 2011), http://www.usbr.gov/projects/Project.jsp?proj_Name=Rio%20Grande%20Project (as of 2011, the capacity was at 2,210,298 acre feet of water to provide for irrigation and power generation). | 29 Autobee, supra, at 22-23 (between 1925 and 1980, silt reduced Elephant Butte’s capacity from 2,638,000 acre-feet to 2,110,298 acre-feet); Rio Grande Project, Facilities Description – Elephant Butte Powerplant, BUREAU OF RECLAMATION (May 16, 2011), http://www.usbr.gov/projects/Project.jsp?proj_Name=Rio%20Grande%20Project (as of 2011, the capacity was at 2,210,298 acre feet of water to provide for irrigation and power generation). |
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Water Rights Management In New Mexico and Along the Middle Rio Grande: Is AWRM Sufficient?

By Carol Romero-Wirth, Esq., & Susan Kelly, J.D.

Executive Summary

New Mexico has a new waterscape since the New Mexico Supreme Court upheld the Active Water Resource Management [hereinafter AWRM] regulations promulgated by the State Engineer for administration of water prior to adjudication. This paper describes New Mexico’s constitutionally established system for determining and managing water rights, a system known as priority administration. It then follows the eight-year journey through the courts of the Legislature’s 2003 law directing the Office of the State Engineer [hereinafter OSE] to create an administrative process to manage water, the law that resulted in the AWRM regulations. In addition, this paper reviews the work done by the Legislature, the Judiciary and the Executive Branch to consider alternatives or reforms to New Mexico’s judicially based system for water adjudication.

With this information as background, the paper turns to the Middle Rio Grande, the state’s population and economic center. Water adjudication has not been commenced in this area, water is currently managed without the formality of the constitutional system of priority administration and AWRM has yet to be and may not be applied. To answer the question of how to proceed in the Middle Rio Grande [hereinafter MRG], it is important to know how this area’s water is presently managed and to identify what is not currently considered in the management of the river as the region faces the reality of prolonged or permanent water shortages.

Improvements in water law and policy will be needed to promote the efficient use of water, effectively facilitate reallocation while minimizing negative consequences, protect the natural environment, and provide certainty for water users’ future
needs with protection of legal rights. All this must be done at the same time that the State continues to develop mechanisms that assure agreed upon water deliveries between New Mexico and the other Rio Grande Compact states. Clearly, this is no small set of tasks, but there are models described in this paper that we should consider and could employ as we continue to move forward. This paper proposes possible avenues for productive dialogue among the stakeholders in the basin and with the State Engineer to develop strategies for addressing future challenges.

Priority Administration, Adjudication And AWRM

New Mexico has historically been reluctant to use its constitutional system of priority for allocating water rights in times of water shortage. Under this system, water officials make a “priority call” on a river basin and curtail junior users in favor of older water rights. On the Pecos River for example, when Texas claimed that it was being shorted deliveries of water under the Pecos River Compact, rather than institute a “priority call” on the river to shut off junior agricultural users, the state Legislature began a now long and storied process of buying water rights to supply Texas water. The OSE website says a “priority call” “should be a measure of last resort.” Priority administration can be technically challenging. In a water short year, it is difficult to prevent the delayed effect on senior water right holders of pumping that has occurred in previous years by junior groundwater users.

NM Water Law basics:

The NM Constitution at Article 16, Section 2, declares that the state’s unappropriated water from “every natural stream, perennial or torrential” belongs to the public and is available for beneficial use. This section also provides that “priority of appropriation shall give the better right.” The water user with the earliest appropriation date has a senior right and the newer users are considered junior. The senior water users have the first right, and if there is enough water, those with later priority dates also receive water. This concept is sometimes referred to as, “first in time, first in right.” As a factual matter, because of historical settlement patterns municipal groundwater permitted rights are often junior to agricultural surface water rights. Priority administration, therefore, has the potential to pit cities and farmers against each other and in fact has been rarely used.

The State’s Water Code was enacted in 1907. After that date, a permit from the State Engineer was required for any new appropriation of surface water. A pre-1907 water right is a water right that was in existence prior to 1907. The law recognizes that all water rights in existence prior to 1907 are vested in the landowner and are senior to permits issued after that time.

Under the NM Constitution, Article 16, Section 3, “Beneficial use shall be the basis, the measure and the limit of the right to the use of water,” meaning that a water user is entitled to only that amount of water that the water user can put to beneficial use. Beneficial use is not defined, but it is clear that it does not include waste. In addition, the fact that beneficial use is the basis, measure and limit of a water right means that if someone stops using the water, they lose the right. This is sometimes known as the “use it or lose it doctrine.”
Despite this reluctance to manage water by priority administration by issuing a “priority call”, we continue to move forward with water adjudications to determine water rights and priority dates for water users across the state in many different water basins. There are twelve (12) active adjudications in the state; some in federal court and others in state court. The issues are similar regardless of where the lawsuit is filed and many have been going on for generations. The Aamodt adjudication is considered the oldest active federal lawsuit in the United States as it was first filed in 1966. The oldest state water right adjudication in New Mexico is the Pecos River adjudication filed in 1956. Historically, water right adjudications have taken decades and consumed substantial resources from water right claimants and governments. A study conducted by the Institute of Public Law, that will be discussed in detail later in this paper, noted that water right adjudications also have not “produced water rights data that can be readily used to enforce water rights.”

2003 State Statute to Manage Water Administratively

As a state, what system or process do we employ to manage our waters if adjudication has proven to be prohibitively time consuming and strict priority administration in many cases is economically, politically and technically unfeasible?

In 2003, in response to a very dry 2002 across New Mexico, the state Legislature passed and the Governor signed, Senate Bill 551, a duplicate or mirror bill of House Bill 604 enacting Section 72-2-9.1 NMSA 1978 entitled “Priority Administration, Expedited Water Marketing and Leasing; State Engineer.”

The Legislature recognized in the statute that “the adjudication process is slow, the need for water administration is urgent, compliance with interstate compacts is imperative and the state engineer has authority” (emphasis added) to administer water allocations in accordance with the water rights priorities recorded with or declared or other wise available to the state engineer.”

The law requires the State Engineer to adopt rules for “priority administration to ensure that authority is exercised:

(1) so as not to interfere with a future or pending adjudication;
(2) so as to create no impairment of water rights, other than what is required to enforce priorities; and,
(3) so as to create no increased depletions.”

The State Engineer is also directed to adopt rules based on “appropriate hydrologic models to promote expedited marketing and leasing of water in those areas affected by priority administration.” Further, the rules are to be consistent with “the rights, remedies and criteria established by law for proceedings for water use leasing and for changes in point of diversion, place of use and purpose of use of water rights.” Finally, the rules are not to apply to acequias or community ditches or their water rights.

Both bills passed the Legislature with unanimous votes — no legislator registered a vote against the measures although some were excused or absent at the vote. Senate Bill 551 passed the Senate (33-0) and the House (63-0). House Bill 604 passed the House (63-0) and the Senate (30-0). The bills moved forward in the process with “due pass” recommendations from the House Energy and Natural Resources Committee, the House Agriculture and Water Resources Committee, the Senate Conservation Committee and the Senate Corporation and Transportation Committee.

Active Water Resource Management

In December 2004, the State Engineer promulgated regulations in accordance with the statute. Active Water Resource Management was born. (N.M. Code R. Section 19.25.13) AWRM has been the subject of litigation over its constitutionality and the Legislature’s intent over the past eight years, moving from the state district court, to the state court of appeals, to the state Supreme Court. The primary question for the courts has been whether the
The essential strategy for water administration under AWRM is the same as New Mexico’s long-existing statutory scheme for water master districts.

Legislature properly delegated authority to the State Engineer and whether the authority granted constituted new authority or whether it was confirming the State Engineer’s existing authority in statute to administratively manage water. A decision from the New Mexico Supreme Court was issued in November of 2012, and provides the definitive word from the judiciary about the constitutionality of the statute and the regulations on their face. To analyze the decisions, background about how AWRM works is needed.

The essential strategy for water administration under AWRM is the same as New Mexico’s long-existing statutory scheme for water master districts. Existing statutory authority other than N.M.S.A.1978 Section 72-2-9.1 is cited heavily in the AWRM regulations. For example, provisions regarding water master districts and the duties of the water masters track statutes that were enacted as part of the 1907 Water Code. The rules allow for the creation of water master districts provided that the State Engineer finds that “the creation of such a water master district is necessary for the economical and satisfactory administration of water.” (N.M. Code R. Sections 19.25.13.11 & 19.25.13.12) Specific rules are required for each district established by the State Engineer as provided in previously existing statute. (N.M. Code R. Section 19.25.13.10) Water masters are to be appointed for each district and tasked with specific duties to manage water within the district. (N.M. Code R. Sections 19.25.13.10 & 19.25.13.16)

Water Master Duties

Water masters can also be appointed and are directed to “have immediate charge of the administration of waters within a water master district as necessary to protect the public safety and the interests of water right owners in a district or for the economic and satisfactory apportionment of water to all administrable water rights from the available water supply, and shall so regulate and control the waters of the district as to prevent waste.

Administration implemented by the water master may be direct flow administration, storage water administration, depletion limit administration, alternative administration, or any combination thereof, as defined by district-specific regulations, depending on the physical and legal circumstances affecting the water resources and administrable water rights of the water master district.”
Generally, water masters are directed to manage water according to an “administrable water right” that the water masters establish using evidence laid out in the regulations. The right can be one determined by a court or on an interim basis by the AWRM rules “prior to the commencement or completion of, and during the pendency of, a water rights adjudication.”

The AWRM regulations allow the State Engineer to determine an “administration date” for a particular water master district. It is then the duty of the water master to curtail all administrable water rights that are junior to the administration date. (N.M. Code R. Section 19.25.13.24) Out-of-priority uses can only be made with a “replacement plan” approved by the State Engineer. Id.

“Replacement plans” can be approved by the State Engineer for a period of no more than two years (N.M. Code R. Section 19.25.13.33) and are allowed during his “administration of the available water supply to prevent serious and imminent economic harm in response to, and only until water rights are permanently transferred, if necessary.” (N.M. Code R. Section 19.25.13.31) The replacement plans are to be based on hydrologic analyses that in the judgment of the State Engineer “provide sufficient replacement water to fully offset depletions to surface waters caused by out-of-priority diversions in order to prevent impairment of senior water right owners by the junior water right owner that would otherwise be out-of-priority.” Id. Owners of an out-of-priority administrable water right can also submit a replacement plan for approval by the State Engineer (Id.) and the regulations allow for water right owners to form groups for joint application of replacement plans or to discuss or negotiate shortage sharing agreements or “other forms of administration.” (N.M. Code R. Section 19.25.13.38)
Several methods for objections or review of decisions made as part of administering water rights under AWRM are provided for:

- An objection to a decision of a water master can be made directly to the water master and if the objection is not resolved the objection can be directed to the State Engineer as provided in N.M.S.A. 1978 Section 72-3-3 for review of water master actions. The rules contemplate that each district will set up a streamlined process for prompt hearing by the state engineer for review of water master decisions. (N.M. Code R. Section 19.25.13.23)

- The State Engineer is directed to hear objections to a water master's decision regarding the determination of an “administrable water right” in accordance with N.M.S.A. 1978 Section 72-2-16 providing for an administrative hearing before a de novo appeal to the State District Court as allowed by N.M.S.A. 1978 Section 72-1-1. (N.M. Code R. Section 19.25.13.27) The filing of an objection does not stay the administration of the water right while the dispute is being resolved.

- Appeals from approval of a replacement plan must be made within 30 days as provided in N.M.S.A. 1978 Section 72-2-16 allowing for an administrative hearing. The regulations ask that the objection be heard in a prompt manner as required by N.M.S.A. 1978 Section 72-3-3 reviewing decisions of water master actions. (N.M. Code R. Section 19.25.13.40)

- Appeals of decisions by the State Engineer are as mentioned above de novo to the state district court as provided in statute at N.M.S.A. 1978 Section 72-1-1.

- The AWRM regulations also underscore that when court decrees are issued as the result of adjudication or other court proceeding, making a water right determination, the court determination supersedes any administrative determination made under AWRM. (N.M. Code R. Section 19.25.13.28)

Tri-State Generation and Transmission Files Lawsuit

Tri-State Generation and Transmission Association and the New Mexico Mining Association filed suit in 2005 in the Seventh District Court in Socorro County to have AWRM declared unconstitutional. The Middle Rio Grande Conservancy District was originally a plaintiff in the suit, but withdrew prior to the ruling by Judge Matthew Reynolds in May 2007. The court ruled that the “hierarchy” of evidence used to determine an “administrable water right” (See box above for list of acceptable evidence allowed under N.M. Code R. Section 19.25.13.27 of AWRM) went beyond the statutory authority given by the Legislature to the State Engineer and therefore violated the New Mexico Constitution, Article 3 on Separation of Powers.

The district court agreed with Tri-State that the Legislature in enacting N.M.S.A. 1978 Section 72-2-9.1 did not grant new authority to the State Engineer. Instead, the court concluded that the Legislature intended the State Engineer to use his existing authority granted in N.M.S.A.1978 Section 72-2-9. This section allows the State Engineer to apportion waters and determine priorities using only licenses he issues and actions from a water adjudication. The district court, therefore, determined that only final decrees, partial final decrees, subfile orders and offers of judgment resulting from adjudication proceedings and licenses issued by the State Engineer were sufficient evidence to determine a water right. The court reasoned that if the Legislature wanted other evidence used, they would have been explicit in the statutory direction provided in N.M.S.A. 1978 Section 72-2-9.1. A hydrographic survey, a state engineer issued permit to use water and a determination by the State Engineer based on best available evidence were ruled unconstitutional as the Legislature did not explicitly provide the State Engineer with new authority to use these kinds of evidence.
Further, the court determined that the
hearing procedure for evaluating objections
to decisions of water masters or the State
Engineer as set out by the regulations
violated due process. An adequate process to
satisfy due process concerns must have
“guarantees of prompt resolution.” The
court was concerned that the appeal process
set out in the regulations would create
unacceptable delay and therefore would deny
parties adequate due process. The district
court’s ruling was, therefore, procedural and
not substantive. The district court’s ruling
did not invalidate all of the AWRM
regulations, but it did significantly reduce
the power of the State Engineer to
administratively curtail junior water rights to
protect senior water right holders in times of
water supply shortages.

Interim Legislative Water &
Natural Resources Committee –
Adjudication Subcommittee

The State Engineer subsequently appealed
the district court decision to the New
Mexico Court of Appeals. While the Tri-
State appeal was pending in the state court of
appeals, the Interim Legislative Water and
Natural Resources Committee created an
adjudication subcommittee in June 2007 to
study adjudication reform. In addition, a
group of staff from the Administrative Office
of the Courts [hereinafter AOC] and the
OSE studied the water adjudication process
in New Mexico to explore how to improve
and speed up the process.

In September 2007, the AOC provided the
Legislative Finance Committee [hereinafter LFC] with a memo surveying adjudication
laws of other western states stating that there
wasn’t one correct procedure for adjudicating
water rights. Even so, the AOC summarized
some general propositions including a
recognition that a general stream
adjudication is a “judicially blessed”
inventory of water rights and reform requires
“techniques for identifying, evaluating and
monitoring changes in water rights
ownership”; there is no “magic bullet” to
make the system “more efficient, less costly
and less contentious”; there must be a
“proper balance between fairness and
efficiency” since one effects the other, legal
challenges are inevitable in any change of the
adjudication process; and finally, reform of
one stage of the adjudication process will
cause a chain reaction to the other stages of
the process, so assessment of any change
must be considered for its impact on the
whole. The AOC found similarities in the
judicial-based adjudication of three states
where some satisfaction with the process was
reported.

Focus was directed on these three selected
Several aspects of their adjudication
procedures have similarities:

- **Comprehensive Statutory Scheme:** The
  selected states all had “comprehensive
  procedural statutory schemes for
  adjudicating water rights”. New
  Mexico’s procedure was characterized as
  “haphazard”, developed over time
  starting in 1907 using the same
  procedural rules as regular civil law
  suits. Water adjudications, however, are
different from civil litigation because of
the thousands of water claimants, and
the fact that a lot of the technical work
must be completed by hydrologists,
mapping experts and field technicians
before the court can do the work of
resolving claims.

- **Service of Process, Notice of
  Adjudication & Filing of a Claim:** The
  selected states have “specified an
  alternative and less burdensome means
  for giving notice that claimants must
  file formal water rights claims.” In New
  Mexico, water right claimants become
defendants in a lawsuit where the State
is the plaintiff. Water right claimants
One out-of-state judge likened the filing of a water right claim to getting title for your car where the burden is on the car owner and not the state.

are formally notified or served process by the OSE stating what the State asserts is the extent of their right and its priority date based on a hydrologic survey conducted by the OSE. The burden in New Mexico is on the State to notify a water right claimant, rather than on the water right claimant coming forward. The selected states all place the burden of filing a claim on the water right holder with consequences like forfeiting their water rights or priorities for non-compliance. One out-of-state judge likened the filing of a water right claim to getting title for your car where the burden is on the car owner and not the state.

• Role of the State Engineer: In New Mexico, water right claimants are named defendants in a lawsuit initiated by the State. Attorneys “housed” at the OSE are commissioned by the Attorney General’s Office to conduct the legal work on behalf of the State. The OSE is the technical expert conducting the hydrographic survey and proposes the description of the water right including the priority date as well as the amount of a potential water right that can then be refuted by the water right claimant. The AOC found that in the selected states, none of the water agencies “routinely litigated” against a water right claimant. The OSE does not see its role as technical expert and the work of the state’s attorneys housed in its offices as a conflict since it’s not the State’s water right per se that they are pursuing but a determination of whether the public’s water right has been put to beneficial use and maintained as of a particular date by a particular water user in a particular quantity.

• Procedure for Resolving Objections to the Validity of a Water Right: The AOC explains that there are two parts to determining the validity of a water right. The first part is determined by the state examining and possibly objecting to a water right claim and the second part is where each water right claimant must be allowed to object to the validity of all other claimants’ claims. In New Mexico, we do this in two distinct steps. The State determines the validity of a water right claim in the subfile phase while the validity of all other claimants’ claims against each other are evaluated in the inter se phase of the adjudication. In the selected states the two phases are combined into one proceeding.

• Water Courts and Role of the Judiciary: In the selected states, the judiciary was found to have a more pro-active role in determining what cases or disputes could not be settled and actually went to a full trial. In addition, the selected states had courts that were dedicated to solving water issues. Judges in these states generally had no other responsibilities or caseloads in other areas of law and they had sufficient administrative support. The same cannot be said in New Mexico.

The report can be found at: http://www.nmacequiacommission.state.nm.us/Adjudication/AOC-AdjudicationWhitePaper.pdf

In July of 2007 the AOC identified four areas that needed to be addressed

“(i) reform adjudication procedures, (ii) creation of a workable system of keeping track of changes in water rights ownership, (iii) prioritization and reallocation of resources at the OSE and (iv) court restructuring and reform”

These areas provide suggestions or examples for (i) procedural reform and (ii) court reform. The AOC recognized that there are “political, legal and budgetary” implications of adopting procedures from other states and any change would fail without collaboration.
In October of 2008, the AOC and the OSE made reports to the Interim Committee. At that time, AOC staff seemed to prefer adjudicating water rights through a court process while the OSE staff was comfortable with a more administrative-heavy process. The collaborative work of these two offices subsequently broke down. According to the AOC, a joint proposal was not possible because of differences “over the extent to which water rights should be inventoried administratively.”

The OSE commented in an October 24, 2008 quarterly report on efforts of the AOC/OSE working group on adjudication that there had been “considerable research” done on adjudication reform. OSE believed, however, that the changes identified had not been analyzed to the extent where there could be “any degree of confidence” that the changes would “result in an adjudication process that is more efficient, more accurate, less litigious, and less costly.” OSE continued that making change at that point would have been “making change for the sake of change.” In the OSE’s view, “thorough analysis and careful planning and consensus building” would be needed before adjudication reform could be effective.

2009 Senate Joint Memorial 3

Following the completion of work by the interim subcommittee, where agreement on a proposal stalled, it was clear that the alternatives needed more analysis and study. The 2009 Legislature passed Senate Joint Memorial 3. The Joint Memorial requested the Institute of Public Law and the Institute of Public Policy at the University of New Mexico School of Law [hereinafter IPL] design and conduct a study to acquire public input about the “procedures and process for adjudication of water rights.” In addition, the Legislature directed that one purpose of the study was to “provide the public with an understanding of issues associated with the adjudication of water rights and the possibilities for reforming those procedures” as identified by the work of the AOC and the OSE. The study sought comment on four approaches in six stakeholder forums held between June 20 and August 5, 2009 in Taos, Las Cruces, Roswell, Albuquerque, Farmington and Socorro. Albuquerque and Socorro (communities in the Middle Rio Grande) did not have pending adjudications while the other areas were in active litigation to determine water rights.


The approaches offered for public input are as follows:

- **State Your Claim:** Everyone who claims water rights would have to file a claim form with a state agency describing their right. Similar to getting a title for your car – you would have to file a claim to get title to your water right (Currently, the State Engineer conducts a hydrographic study and then presents individually what is determined to be the water right for each claimant to accept or dispute.)

- **Licensing First:** Before there is a formal lawsuit that begins the adjudication of an area, a state agency would be required to issue licenses for all water rights in the area.

- **Get It Done, One at a Time:** Disputed issues related to a particular water right claim or among claimants are resolved in one proceeding rather than across multiple stages as is done currently.

- **All for One and One for All:** Certain organizations (i.e. acequias or irrigation districts) would represent their members in an adjudication rather than current process where every claimant participates individually in the process to determine the water right.

According to the AOC, a joint proposal was not possible because of differences “over the extent to which water rights should be inventoried administratively.”
The methodology for the study was a modified model developed by the National Issues Forum Institute and while it appears the model was sound for soliciting opinions without injecting bias, the study had several shortcomings. By their own admission, limited resources and limited time for conducting the study curtailed the ability of the researchers to fully meet the expectations of Senate Joint Memorial 3. However, while the study was not a scientific one or a representative sample of the public’s views those that participated were engaged and held strong opinions. The goal was not to achieve consensus around a particular approach but to determine the range of opinions, the tensions and values behind the positions of the stakeholders for a particular alternative.

The OSE was helpful in recommending participants for the study and offered comments for the background material required to create public understanding so that positions from the public could be solicited. The OSE objected, however, to testing these approaches until analysis could be done to determine whether the approaches might actually improve the adjudication process, as it currently exists. The OSE also did not see licensing as an adjudication reform per se but rather an administrative tool to be employed no matter what reform measures were enacted.

A stakeholder assessment for each of the four particular approaches was outlined as well as a statement summarizing support for the status quo. The study characterized tensions and dilemmas, value choices and suggestions for consideration. Finally, commentary was included from experts since they were not generally targeted for inclusion in the study.

Formally, the study concluded that: “While the reaction to specific approaches presented was largely critical… latent tensions and dilemmas were revealed. Ultimately, core values and principles were articulated. In a few rare cases, a value choice resolves a dilemma (e.g. fairness trumps efficiency, which is really expediency - Stakeholder comment).”

Although the IPL study was provided to the Legislative Interim Committee on Water and Natural Resources in August 2009, it did not result in legislative action. It might still be valuable as a first step in helping policymakers begin to understand the range of views that are held by the broader public about the process we currently utilize in determining water rights.

**Tri-State Decision by the New Mexico Court of Appeals**

On October 28, 2010, the New Mexico Court of Appeals ruled on the Tri-State case, partially affirming and partially reversing the ruling of the district court. The appeals court was asked to address the validity of two sections of the AWRM regulations. The bulk of the ruling deals with the evidence that can be used to determine a particular water right.

Like the district court, the appeals court considered separation of powers concerns. It was argued that the authority to determine the elements of water rights was solely in the purview of the judiciary and, therefore, the Legislature could not delegate this authority to an administrative agency. The appeals court affirmed the district court and was clear that the state Constitution does not “consign exclusively to the judicial branch” the authority to determine water rights. Therefore, the Legislature is not constitutionally barred under Separation of Powers Doctrine from delegating authority to the State Engineer to make these determinations administratively.

The appeals court, like the district court, ruled that the Legislature in enacting N.M.S.A. 1978 Section 72-2-9.1 did not
expand the authority of the State Engineer to
determine water rights and enforce priorities
beyond what is provided for in N.M.S.A.
1978 Section 72-2-9. It was the expansion
of items that could be used to determine a
water priority under the regulations that the
court ruled “offended principles of
separation of powers.” Further, the court
stated that if the Legislature had intended to
expand the State Engineer’s authority “it
would have done so in direct, clear, and
uncertain terms.”

The court of appeals differed from the
district court ruling that subfile orders and
offers of judgment in adjudications could
not be used to determine priority. The court
of appeals agreed with the district court that
hydrographic surveys, permits and
determinations made by the State Engineer
based on best available evidence were not
permissible forms of evidence. Therefore,
the State Engineer’s authority to determine
priority was narrowed further to only licenses
issued by him and final decrees entered by an
adjudication court.

The court of appeals, unlike the district
court, did not address the validity of the
second section of the AWRM regulations
under dispute dealing with due process.
N.M. Code R. Section 19.25.12.30 defines
the hearing process providing for review of
administrative decisions by water masters
and the State Engineer. The court
determined that under their ruling this
section would be applied differently than
originally designed and it was, therefore,
“speculative” to address.

In the last eight years, the state Supreme
Court ordered a number of important changes
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Procedural Actions by the
State Supreme Court

In the last eight years, the state Supreme
Court ordered a number of important
changes that affect court process concerning
water issues and adjudications. In January of
2004, prior to the issuance of the AWRM
regulations, and as a result of
recommendations from the chair of its own
Ad Hoc Committee to Study Water
Litigation and Stream Adjudication, the
Supreme Court established a “Water Court
Division” within the judiciary. Each court
district now has a designated “water law
Judge” who is assigned cases concerning
water law issues in their specific district.
These judges also preside over cases in other
areas of law. They are not strictly dedicated
to water law cases. The Court further
ordered the development of mandatory
education in water law principles and
procedure for judges, special masters and
staff.

On November 10, 2009, after the IPL study
was presented and as the Legislature’s interim
work was wrapping up, the state Supreme
Court designated Court of Appeals Judge,
James Wechsler, as New Mexico’s water
rights adjudication judge. The Court noted
that it would be in the interest of “judicial
economy” to have one presiding judge. The
goal was to promote more consistency and
uniformity because differences in
omenclature, procedure and forms were
prevalent with multiple judges handling
water right adjudication cases. It should be
noted that Judge Wechsler’s caseload is not
dedicated to water right adjudications but
also contains cases in other areas of law.

In June of 2011, after the court of appeals
ruling, the state Supreme Court finalized
court rules N.M. Sup. Ct. R. 1-071.1
through 1-071.5 that were provisionally
implemented in 2007 regarding water right
adjudication procedures. The rules allow for
expedited inter se proceedings, the service
and joinder of water rights claimants in a
stream system by subsection if the court
finds that the division into subsections
“would promote the speedy and efficient
prosecution of a stream system
adjudication.” The court rules also allow
for the identification and resolution of
“stream system issues.” A stream system
issue is defined as “any issue in a stream
system adjudication suit… the resolution of
which could directly affect the water rights of
all or a significant number of water rights
claimants” without regard to the claimants
being joined as defendants.

The effect of the Supreme Court ruling is that
the AWRM regulations have been determined by
the judiciary to be constitutionally sound and
can now be taken off the State Engineer’s shelf.

Finally, the new rules issued by the state
Supreme Court provide for an annual joint
working session for state water right
adjudications between judges, special
masters, the state, and other stream
adjudication parties. Federal judges and
special masters assigned to federal water right
adjudications are also invited. The purpose
of the annual working session is to
communicate goals, common issues and the
status of resources available to accomplish
required work. The working session results
in a report that details the State's priorities
and the resources available or needed from
the courts and the State for pending state
court water right adjudications.

**Tri-State Decision By the New
Mexico State Supreme Court**

Following the Court of Appeals ruling, the
OSE shelved work on AWRM. Rather than
move forward with the regulations, they
waited to hear if the state Supreme Court
would grant *certiorari* to review the lower
court’s rulings.

The state Supreme Court subsequently took
the appeal and issued its decision in the Tri-
State case in November 2012. The Court
reversed both of the lower courts’ rulings and
held that the AWRM regulations were
constitutional; did not violate the
constitutional limitations on separation of
powers; and, did not violate due process.

Using the title of the bill enacting N.M.S.A.
1978 § 72-2-9.1 and the New Oxford
American Dictionary as guidance for
Legislative intent, the Court determined
that the Legislature had in fact granted the
State Engineer new authority “to carry out
priority administration responsibilities” and
the State Engineer was not limited to the
existing authority granted to him in
N.M.S.A. 1978 § 72-2-9. The Supreme
Court also disagreed with Tri-State’s second
separation of powers argument, and agreed
with the court of appeals, that the state
Constitution does not “consign exclusively to
the judicial branch” the authority to
determine water rights. It also validated the
State Engineer’s authority to apportion water
administratively outside of a court
adjudication process. The Supreme Court
found there was no violation of separation of
powers.

Finally, the Supreme Court found that
AWRM did not violate the state
Constitution on due process grounds. A
violation of due process would require a
person to be deprived of life, liberty or
property. Tri-State argued they were being
deprived a water right. The Supreme Court
stated that a water right is a “usufructuary”
right that allows only for its use; regulation
of that use by the State does not amount to a
deprivation and, therefore, there could be no
due process violation. Tri-State also argued
that the appeal process under AWRM would
take too long. The court found that the
“harm” Tri-State envisioned was “speculative”
and it, therefore, lacked standing “to advance
arguments based on the hypothetical effect
of the regulations.” The Court refused to
invalidate the process on due process
grounds.

The effect of the Supreme Court ruling is
that the AWRM regulations have been
determined by the judiciary to be
constitutionally sound and can now be taken
off the State Engineer’s shelf. The OSE
declared in its press release dated November
1, 2012 that the “Active Water Resource
Management rules as written in 2004 are
now in effect” and would be implemented in
seven priority basins including the lower Pecos River, lower Rio Grande, the San Juan River, the Upper Mimbres, the Rio Gallinas, the Nambe-Pojoaque-Tesuque Basin and the Rio Chama. In addition, basin specific regulations will be promulgated for each of these areas to take in account their unique characteristics and issues.

Implications for the Middle Rio Grande

Given that adjudication of the Middle Rio Grande has been estimated to involve thousands of claimants, cost millions of dollars, and last for decades, it is reasonable to consider, “Why should the State adjudicate the Middle Rio Grande if the OSE can manage the water to meet the needs of water users?” (Middle Rio Grande or MRG as used in this paper, refers to the portion of the Rio Grande and connected basin aquifiers lying below Cochiti Dam and above Elephant Butte.) It should be noted that implementing AWRM in the Middle Rio Grande is not currently a priority for the State Engineer.

But without adjudication or AWRM, how will water shortages be managed? We don’t have a comprehensive process underway. The OSE would like funding from the Legislature to further their work to license rights, work they see as expediting the adjudication process when it is actually commenced in the area. Is a comprehensive process necessary, or is the current approach to pursue licensing and continue on-going practices for administering water rights and managing water deliveries satisfactory for the short and the long term?

Some experts feel we are headed for a train wreck because the MRG is over-committed with regard to water rights, meaning there are more claimed water rights than actual wet water in most years. The OSE describes the situation as “fully appropriated,” because, arguably in a prior appropriation system, it is not possible to over-allocate water rights. But this characterization presumes that the prior appropriation scheme has enforcement mechanisms that will be employed, including the ability to stop junior water rights from impacting senior water rights in a water-short year.

New Mexico has largely been able to provide sufficient flows to meet the requirements of the Rio Grande Compact, in part, due to augmentation of the river with municipal return flow (water that has been diverted, used, treated and returned to the river). Groundwater pumping, however, affects stream flows over time, and a deficit to groundwater is being accumulated, in large part due to pumping in the Albuquerque and Rio Rancho urban areas. In other words, water demand in the MRG exceeds water supply. According to the Middle Rio Grande Water Supply Study, Phase 3, the region is projected to experience on average a shortfall of approximately 40,000 acre-feet per year in terms of surface water supply, and an additional deficit of 71,000 acre-feet per year as a result of groundwater pumping.

New Mexico has largely been able to provide sufficient flows to meet the requirements of the Rio Grande Compact, in part, due to augmentation of the river with municipal return flow (water that has been diverted, used, treated and returned to the river).

In order to appreciate the complexity of water issues in the MRG, a brief summary of the region’s supply and current water administration may be useful.

Water Supply and Administration

The MRG is heavily regulated, controlled and gauged. Highly variable supplies of native water from mountain snowpack and rainfall in the basin are stored in reservoirs and managed for delivery to Texas at Elephant Butte under the terms of the Rio Grande Compact, an agreement between Colorado, New Mexico and Texas. The San Juan-Chama project water is water imported from the Colorado River system across the
Rio Grande Basin
by Jerold Widdison
Continental Divide. It is New Mexico's water under the Colorado River Compact and supplements the native flow of the river for use in New Mexico. The “Rio Grande Reservoirs in New Mexico” map provides a useful reference for major features along the river.

Surface water is extensively managed for irrigators in the Middle Rio Grande Conservancy District [hereinafter MRGCD], including members of six sovereign Pueblos. The river also provides water to municipal communities comprising more than 40% of the State's population and a large portion of the State's economy. Although urban areas in the MRG have largely been reliant upon groundwater, the Albuquerque Bernalillo County Water Utility Authority and the City of Santa Fe have recently begun to use treated San Juan-Chama [hereinafter SJC] water, surface water diverted from the river, for municipal purposes. The MRGCD and other entities also use SJC water under contracts with the U.S. Bureau of Reclamation for a portion of their water supply.

The State Engineer manages the MRG to maintain equilibrium between groundwater and surface water, recognizing the hydrologic connection between the two sources. Because the river has been considered fully appropriated since the signing of the Compact in 1938, the OSE requires that if a water right is transferred to a new use, the old use is retired thereby offsetting the new water use and keeping the river whole. Withdrawals from wells have a delayed impact on the river, so Rio Grande surface water rights are required to be in place in municipal permits at the time the effects of groundwater pumping are deemed to reduce flows in the river. The simulated time frame for depletion effects to hit the river is a function of the local hydrogeology. As a result of urban growth, most water right transfers in the MRG have been from agriculture to municipal well permits.

The Middle Rio Grande Endangered Species Act [hereinafter MRGESA] Collaborative Program is a group of federal, state, and local agencies, sovereign Pueblos and other entities that have helped to manage water and undertake research, habitat restoration, and other activities for the benefit of the Rio Grande silvery minnow and southwestern willow flycatcher. Supplemental water for these species has come from contractors' unused SJC water, a situation that must change as the contractors put this water to full beneficial use. All activities of the Program are simultaneously intended to protect existing and future water uses.

Federal and State agencies, sovereign Pueblos, and many other parties are engaged in activities to manage the Rio Grande. Major on-going river management initiatives include:

- Irrigation metering and measuring
- Pilot channel construction
- River system modeling
- Rotational delivery of irrigation water
- MRGESA Collaborative Program Supplemental water program
- Habitat restoration
- Reservoir Management
- Water Conservation efforts in all use sectors

Adjudication, AWRM or Stay the Course in the MRG?

Currently, while there are many efforts underway to improve the management of water in the Middle Rio Grande, there is no active or formal adjudication underway to determine water rights – to answer the question, who owns what? There are problems in managing the river according to the status quo, briefly described above as managing the river and reservoirs to meet the Compact, requiring offsets for depletions, and managing to comply with the Endangered Species Act [hereinafter ESA]. Some important categories of water rights exist or water uses occur that are outside of the Compact. Pueblo water rights, withdrawals from domestic wells, water use of the riparian habitat, and pre-basin...
groundwater rights. These rights and uses are discussed below.

**Six Middle Rio Grande Pueblos**

Pueblo water rights are, by the terms of the Compact, outside of its operation. The Pueblos in the MRG —Cochiti, Kewa (Santo Domingo), San Felipe, Santa Ana, Sandia and Isleta— have federally recognized water rights and federal contracts with the MRGCD. A portion of these rights are “prior and paramount” to any other rights on the river, and the remainder of the rights share priority with the MRGCD. There are also other Pueblo rights as yet unquantified. As the six Middle Rio Grande Pueblos on the main stem of the Rio Grande fully exercise their water rights, river flows will be affected.

Domestic wells are also not covered by the OSE water rights offsetting process, so when a domestic well is drilled and pumped, there is not a corresponding discontinuation of another water use.

The water rights of Native American tribes are usually settled in the context of stream adjudication in federal courts, but negotiations can take place outside of adjudication. Both the State and the Pueblos would have to want to negotiate since there is nothing forcing them to the table, and, there may be some disadvantages to this approach. Negotiations can be long and drawn out, just like adjudication. Also, without litigation, it may be more difficult for the Pueblos to get federal funding (usually through the BIA) for consultants, such as hydrologists and attorneys, so that they may participate fully in the negotiations. Another issue is how a negotiated settlement would be finalized. Settlements negotiated in adjudications are generally finalized by the entry of a final decree and passage of federal, and sometimes state and tribal legislation. So, although the water rights of the Pueblos can be negotiated, there are many issues and complexities that may point to adjudication as the better framework for resolution.

**Domestic Wells**

Domestic wells are also not covered by the OSE water rights offsetting process, so when a domestic well is drilled and pumped, there is not a corresponding discontinuation of another water use. Although arguably each domestic well's impact is *de minimis*, cumulatively, the wells will have a significant effect in depleting Rio Grande flows. In 2002, the State Engineer estimated that the annual effect of domestic wells on the Rio Grande, based on permits issued as of that time, was in the range of 6,000 to 17,000 acre-feet. Due to difficulties in how the data is categorized, the estimate is not confined to the MRG, but the State Engineer most likely has data to develop a closer estimate. It should be noted that domestic wells permits have been, and continue to be, approved since 2002, pursuant to N.M.S.A 1978 Section 72.12.1.

There are also legitimate concerns about whether, when water rights are transferred from a farm, the agricultural water use terminates or does the water use actually continue, often by way of domestic wells? This practice is commonly referred to as “double-dipping.”

**Ecosystem**

The Rio Grande Compact did not account for water for the riparian ecosystem along the river, nor were environmental water uses considered in 1938, probably because people didn't foresee that the river itself would ever be in jeopardy. The *bosque* that residents along the river love, enjoy, and wish to protect, has grown in acreage as a result of man-made improvements to the river (dams and levees) and it uses water that was not included in the accounting system of the Compact.

A related issue is the ESA. The ESA requires that measures be taken to manage the river for the endangered Rio Grande silvery minnow and the southwestern willow flycatcher; and some of these measures
require water that was otherwise allocated when the Compact was signed. What if the ESA Collaborative efforts now underway fall apart? How will the river be managed to meet the ESA water requirements?

**Pre-basin Groundwater Rights**

Another significant category of water rights outside the Compact are pre-basin vested groundwater rights, which make up a sizable portion of the Albuquerque Bernalillo County Water Utility Authority’s water rights portfolio. In 1956, the State Engineer declared the Rio Grande Underground Water Basin and the City of Albuquerque sued. The State Engineer ultimately prevailed in *City v. Reynolds*, but groundwater rights representing the amount the City was consuming in 1956 were grandfathered into the City’s well permit. Junior municipal wells cannot simply be shut down in a water-short year and result in a same-year increase in river flows. This is because of the delayed impact that groundwater pumping has on the river. How will the State deal with meeting the Compact and respecting the rights of senior water users in this situation?

**Agricultural Water Rights**

Other than the prior and paramount rights of the Pueblos, the most senior rights in the MRG are agricultural water rights. The MRGCD manages water of different categories of ownership and priority, including Pueblo rights, pre-1907 water rights, MRGCD rights and SJC water. It is important to note that the MRGCD’s water rights have not been licensed, because the MRGCD has not filed proof of beneficial use.

As mentioned, the trend has been transfers of agricultural water rights to municipal and industrial use. If agricultural water rights continue to be retired in order to meet the demand of new urban growth, the result will be the eventual near-disappearance of agriculture in the Middle Valley. As noted by New Mexico hydrogeologist, Dr. John Shomaker in 2011:

“Albuquerque’s water came entirely from wells until a little over a year ago when the Drinking Water Project, to divert San Juan-Chama Project water and native Rio Grande rights directly from the river, came into service. Drawdown of water levels in wells had become great enough to cause significant problems, and the source was not sustainable over the long term. Even though pumping has been dramatically reduced now, the full effect on the river due to former pumping is far from being realized, and eventually all of the senior agricultural water rights will be required to offset those effects.”

Stated more broadly from a regional perspective, the Interstate Stream Commission [hereinafter ISC] estimates that it would take the water rights from about 57,000 acres of MRG farmland to totally offset the approximately 230,000 acre-feet per year of groundwater rights already permitted. Estimates of total amount of land currently irrigated within the MRGCD are between 50,000 and 65,000 acres.

Thoughtful consideration must be given to the projected effect of this trend from many standpoints: land use, cultural, ecological and food security.

**Water Planning**

The Regional Water Plans have tried to assess and balance projected supply and demand, but more work is needed to understand and manage the impacts of projected water transfers. The MRG includes portions of three of the State’s 16 regional water planning regions:

- *Middle Rio Grande Planning Region, Region 12.* This planning region is comprised of the greater part of Bernalillo and Sandoval Counties, all of Valencia County, and a small portion of...
Torrance County. It includes the population centers of Albuquerque, Rio Rancho, Bernalillo, and Los Lunas. A large portion of this planning region lies within the MRG (the Rio Grande Compact accounting region, as discussed in this paper).

- **Jemez y Sangre Planning Region, Region 3.** A portion of Region 3 lies within the MRG (Rio Grande Compact accounting region). Other portions of Region 3 are above the Otowi gage, in the Espanola Basin, and some of the tributaries above Otowi are in adjudication.

- **Socorro/Sierra Planning Region, Region 15.** A portion of this planning region, the part that lies above Elephant Butte Dam, is part of the MRG (Rio Grande Compact accounting region).

The plans substantially contribute, as do the state’s other regional water plans, to a better understanding of each region’s projected supply and demand. They recommend alternatives for regional water resources management, water conservation, and protection of the regional public welfare. Although each region has developed a Regional Water Plan, which has been accepted by the ISC, there are challenges to their implementation due to many factors, including the lack of enforcement mechanisms, funding, and in some cases, political will. The possibility of defaulting on the Compact obligations is a shared problem among these planning regions, because it could result in more restrictions on New Mexicans’ water use in the Middle Rio Grande.

There is a serious disconnect among the three plans in the MRG: to achieve balance the upstream plans (mainly the Region 12, MRG Regional Water Plan) rely in part on water transfers from Socorro/Sierra to accommodate their future water needs. In contrast, the Socorro/Sierra Regional Water Plan proposes that those same water rights remain there. Incompatibilities among the three plans make it difficult to understand the implications of future problems.

The three regional plans reinforce the likelihood that water transfers will severely affect agriculture in the Middle Valley. The plans estimate that an additional water demand will exist in the MRG in 40-50 years in the municipal and industrial sector of about 120,000 acre feet per year. If this water is obtained only through the transfer of senior water rights, it would require most of the water rights from the land currently irrigated within the MRGCD.

### Climate Change

The future is full of uncertainty about climate change and its probable impacts on water supply. Initial studies indicate there may be increasing frequency of drought, reduced snowpack, earlier run-off, and a longer growing season. Population growth may result in increasing demands on surface water and groundwater, and, when combined with diminishing supplies, growth will provoke the need to manage shortages. Federal water managers (who control water stored in and released from reservoirs), state water managers and local agencies are all working to determine how to manage given the uncertain, but likely effects of climate change. According to a new report, climate change will most likely have significant impacts in New Mexico in both the Colorado River and the Rio Grande Basins. Scenarios in a recent report by the U.S. Bureau of Reclamation shows an average flow reduction of 12-13% in the Rio Grande and 9% in the Colorado River by midcentury.

### Water Shortages Are Here

The Activity Report prepared for the Legislative Finance Committee dated the week ending October 5, 2012 noted these items on Natural Resources:
“During the 2011-2012 water year, flows of native water, water that naturally flowed south down the river not including San Juan-Chama water, on the Rio Grande past Otowi, a key measurement point near Los Alamos, were 50 percent of the long-term average. Without the supply of the imported San Juan-Chama water, the Rio Grande would be completely dry through Albuquerque now.

Elephant Butte Reservoir, the Rio Grande’s largest storage reservoir, held 113,234 acre feet of water, or 5 percent of capacity.”

In December of 2012, the U.S. Bureau of Reclamation announced to contractors for San Juan-Chama water that there is a projected 20% shortfall in water deliveries if dry winter weather doesn’t produce adequate snow pack.

How Do We Administer the MRG?

The OSE has not outlined a plan for licensing water rights in the MRG. How that process unfolds will be critical to whether AWRM can promote more efficient management of water resources without massive litigation. AWRM may not, in fact, be the appropriate framework for managing water on the MRG. AWRM does not apply to the Pueblos, acequias and community ditches. As to other water rights holders, it is sure to be challenged when applied unless implementation is carefully crafted and negotiated. AWRM may, however, be a useful framework for negotiation of agreed-upon shortage sharing.

Some type of adjudication proceedings will most likely be necessary to finally confirm water rights in the region, particularly the Pueblos’ water rights. In any event, more time and resources will be expended and yet the problems, given further water shortages caused by drought and climate change, are with us now.

In the long term, the MRG may be wrestling with a land use problem as much as a hydrologic problem. With urban growth, the ways in which water is distributed and the places where water is used will change and the choices for the future are hard. The broad choices are described in the following way by hydrologist and water resource engineer, Deborah L. Hathaway:

“Shifting water away from riparian water uses along the river corridor would change the character of the river, reduce habitat, and render difficult the current efforts to collaborate in supporting endangered species and the riparian environment. Shifting water away from agricultural uses will impact the character of the Rio Grande valley and agricultural traditions.”

What do we want the Middle Valley to be like in the future? How will we manage changes in current uses to serve all of the different demands for water?

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Potential Steps Forward

Considerable work has been undertaken in the last decade. While the Supreme Court decision in the Tri-State case clarifies a lot about our water management system, much remains unresolved. At the Interim Legislative Water and Natural Resources Committee meeting in November of 2012, there was some indication that some legislators are not comfortable with AWRM post-Tri-State. From a statewide perspective, is it irresponsible to significantly alter the AWRM regulations? Is it okay to pull the AWRM rug from the State’s living room? Arguably no, given the time and resources employed to reach this point. However, even though AWRM has been determined by the
New Mexico Supreme Court to be constitutional on its face, when the OSE applies AWRM there will almost certainly be more litigation to determine its constitutionality as applied.

Areas currently not in adjudication, particularly the MRG, need a focused examination of how to proceed.

The challenges facing the state generally and the Middle Rio Grande in particular are great. Water law and policy need to improve to address current and future challenges, including: promoting the efficient use of water, effectively facilitating water reallocation while minimizing negative consequences, protecting the natural environment, providing certainty for water users that future needs and legal rights will be protected, and developing mechanisms to insure that agreed-upon deliveries between the states will be met and large scale conflict will be avoided.

The Legislature and the Executive can impact the process as it stands and there are a few things that should be looked at and considered:

**Encourage Collaborative Efforts**

Encourage the AOC and OSE to continue to cooperate in improving the adjudication process. There have been many advances in the past decade and continued improvements are in the best interests of the State and those affected by the adjudication process.

Areas currently not in adjudication, particularly the MRG, need a focused examination of how to proceed. Pertinent to this discussion, the Office of the State Engineer, Fiscal Year 2013 Strategic Plan identifies several related objectives for its Litigation and Adjudication Program:

“Develop and implement with [the Water Rights and Allocation Program] a collaborative action plan for licensing water rights in the Middle Rio Grande stream system and related underground water basin.

Develop with the Administrative Office of the Courts an action plan for the adjudication of water rights in the Middle Rio Grande stream system and related underground water basin.”

With the Supreme Court decision in *Tri-State*, the OSE and AOC have more information on how to proceed. There should be a focused examination of issues such as:

- Whether and how to adjudicate the MRG;
- Whether and how to implement AWRM;
- Whether there are better frameworks for resolving and managing water rights in the basin; and,
- Whether alternative strategies should be considered for the near term, such as structured negotiations regarding sharing of shortages among water rights holders.

The Legislature could create a task force to research these issues, obtain input, and prepare recommendations on how to proceed. The task force should include not only OSE and AOC staff, but also policymakers and outside experts to insure that a full range of options is examined. The endeavor would be complex and challenging and support would be necessary for technical and policy/legal research. Such an in-depth examination on how to approach the MRG may reveal that there are strategies available to guide or supplement eventual implementation of AWRM, making the regulatory approach stronger and more durable; or result in an action plan for adjudication; or possibly outline a path to negotiating agreements on interim measures for addressing shortages.

**Clarification re licensing process**

During the adjudication reform discussion, the OSE advocated that licensing was an administrative tool necessary no matter what reform measures were enacted. The OSE
refers frequently to a “licensing proposal” but a written proposal does not seem to have been presented yet. Although there are procedures in place for notice and comment upon application for a permit, there are existing permits to which this process was not applied. Procedures for a process to license water rights have not been outlined by the State Engineer and are not currently enacted in statute (see N.M.S.A. 1978 § 72-5-13 for statutory elements of a license). A fair and open process for the licensing of water rights is needed.

Possibly Conflicting Roles of the State Engineer

Post-Tri-State, the OSE houses attorneys doing the legal work for the state, it is also the technical expert and, under the new AWRM regulations, it is acting in a judicial capacity in determining water rights in times of shortage where court adjudications have not been completed. Water adjudications are not completed for most of the state although twelve are under way. AWRM, according to the State Engineer, will be implemented in seven basins considered priorities, some of which have active adjudications. Whether these roles present a substantive conflict should be reviewed by the Legislature. If there is an actual conflict or discomfort with all these roles being played by one agency, the Legislature could substantively make changes to the duties of the OSE. The IPL study contains many suggestions from study participants that could be considered during the interim including:

1. Completely separating the OSE’s technical role from its legal work by placing technical assistance and evaluation in an independent agency or institution.
2. Don’t initiate the adjudication process “cold” with a lawsuit noticed by mail,
3. Transparently provide information/education to water right claimants,
4. Designate a water court, or
5. Create a settlement-based system/collaborative resolution system.

Science and Planning

Statewide, there is a wealth of research and science regarding water supply and demand. There are still areas that lack clarity, however, and significant areas of research that are still needed. First, the models and tools that currently exist and provide useful information for decision-making need to be kept up-to-date and supplemented as new research provides better information.

The fact that different planning regions have conflicting views of future water use scenarios in the MRG is problematic in view of the need to manage water for the future.

The fact that different planning regions have conflicting views of future water use scenarios in the MRG is problematic in view of the need to manage water for the future. One approach may be to refine existing models and agree to a water accounting system among the regions, gaining the ability to run scenarios of various future conditions and assess the cumulative impacts of a variety of actions. This activity would require concerted cooperation among many agencies, local governments, sovereign Pueblos and stakeholders, but could provide some baseline information that may contribute to eventual negotiations on sharing of shortages.

Provide a Forum

This concept is particularly directed at the Middle Rio Grande, although there may be other basins that have similar needs. In 2010, when the ISC staff proposed a complex, innovative strategy to eventually extinguish Intel's groundwater permit and gain water rights for the Strategic Water Reserve, “all hell broke loose.” Even though ISC’s attorneys and hydrologists had invested hundreds of hours in developing the agreement and believed it to be in the best interest of Middle Valley water users, there were many stakeholders that were
vehemently opposed to it. The ISC staff was stunned at the reaction. Most of the complaints focused on a lack of notice and a lack of clear understanding of the proposed agreement. Without revisiting the pros and cons—the proposal was ultimately killed.

One insight to come from the uproar was that a forum might be helpful for discussion of issues like this that arise and affect broad groups within the basin. “There is no institutional forum for the discussion of an idea like this, a place where the major players with skin in the state water game—the big municipal utilities, irrigators, the pueblos, the state regulators and legislators—regularly sit down to discuss our water future,” wrote John Fleck in the Albuquerque Journal. Any forum for discussion of water issues in the MRG would need to have an organizational structure, an advisory role and clear guidelines for its purpose. One example might be the Lower Pecos River Basin Committee.

Exploring Other Models

Major parties have said that they will file suit when AWRM is applied, if they believe it impairs their water rights. Perhaps it would be fruitful now to think about getting organized to begin discussions on what might work and possibly avert a crisis and massive, never-ending litigation? It might serve us to look at how other unadjudicated basins operate. Other models may help inform how AWRM could be implemented and strategies developed that would be inclusive of the many diverse interests in our water basins. Obviously, the devil is in the details, but examples such as the following may have parallels to and provide ideas for managing the MRG Basin and perhaps other basins in the state.

**Montana’s Reserved Water Rights Compact Commission**

The Montana Reserved Water Rights Compact Commission may provide a useful example of how settlement of water rights could work. Although the Commission only deals with reserved water rights, there is no reason that it could not be fashioned to facilitate negotiations in a broader context. The key is an independent Commission, with good technical support from legal and political experts, hydrologists and agricultural scientists; and, a negotiation process that is open at critical junctures. The Commission, established by the state Legislature is authorized to negotiate settlements with federal agencies and Indian tribes claiming federal reserved water rights in Montana. The claims of the tribes are suspended from adjudication while they are being negotiated. The Legislature and the federal government approve settlements that are reached. Citizen participation is an essential element of each settlement and ensures that the Commission’s deliberations on behalf of Montana address the concerns of the public and incorporates local solutions to water use problems.

**Colorado Water Conservation Board, Basin Roundtables**

These nine roundtables exist under state law. They are similar to New Mexico’s regional water planning groups, except that they are standing committees with designated representation of various constituencies and a liaison to the Colorado Water Conservation Board. Each basin roundtable is required to develop a basin-wide water needs assessment, consisting of four parts: 1) Consumptive water needs (municipal, industrial and agricultural); 2) Nonconsumptive water needs (environmental and recreational); 3) Available water supplies (surface and groundwater) and an analysis of any unappropriated waters; and 4) Proposed projects or methods to meet any identified water needs and achieve water supply sustainability over time.
The Roundtables provide an alternative venue to address issues of concern surrounding a major water transfer or project and, notably, they can enter into cooperative problem solving where issues arise between different water basins. The process doesn’t replace the jurisdiction of the courts or change the permitting process for water rights and projects, but the time and cost of court proceedings may be reduced.

*Murray Darling Basin Authority, Australia*

This Basin’s ground and surface water have been over-committed for some time. In the midst of a terrible drought (starting in 2000) the basin managers had to make politically hard decisions about water resource management. In 2007, they created an independent, apolitical and accountable water authority to do so. The new governance regime is empowered to balance between the needs of the environment and the demands of all other water users; develop a water sharing and licensing system aligned with hydrological realities, and develop consistent water trading, pricing and water accounting rules that impose market disciplines on water storage, water investment, and water-use decisions.

*Model Water Code*

Judge Matthew Reynolds, Seventh Judicial District Court, New Mexico, has offered some ideas. In 2007, Judge Reynolds issued the lower court opinion in the *Tri-State* case. He has presented his ideas about water law in New Mexico on several different occasions. He believes that in New Mexico water judges are being put in the very difficult position of having to decide water issues using outdated legal tools that may not be sufficient to meet the challenges of the present times. He has urged the water law community to examine the Model Water Code (ASCE, 2007) as a touchstone for exploring whether there are opportunities to enact feasible updates to New Mexico’s 1907 Water Code, while respecting the prior appropriation doctrine. There are pieces of the Code — such as well thought out definitions and processes — that may provide insight and ideas to assist in formulating agreements as negotiations occur either within or outside the framework of AWRM.

The Roundtables provide an alternative venue to address issues of concern surrounding a major water transfer or project and, notably, they can enter into cooperative problem solving where issues arise between different water basins.

Judge Reynolds has also spoken about a UNESCO publication showcasing global case studies in water administration. He found that the case studies revealed four characteristics of successful water policy implementation. These are:

- Wide stakeholder consultation and continuous involvement in defining priority water issues and water policies and laws required to tackle these, are critical elements to ensure the longevity and sustainability of integrated water resources management;

- Central to the success of many integrated schemes is the collation and free sharing of (good) hydrological and other water-related data. Most progress is made when a single authority is mandated and resourced to produce a well-designed and accessible data base;

- Pilot schemes are a very effective way to make progress when tackling the complexity of water resource management issues; and,

- Institutional fragmentation, both scientific and operational, is a major impediment to achieving effective and integrated water resources management. Operational progress appeared to be most successful where a single (central) authority was given basin-wide responsibility for water resources that is backed by appropriate water laws and institutional arrangements.
Conclusion
As the Legislature sets policy regarding adjudication and active water resource management regulations; and the State Engineer, with input from stakeholders, develops a licensing process and continues to implement and develop water management policies, the characteristics of successful water management structures and models from other jurisdictions may provide instructive guideposts for success. For the Legislature, setting direction to continue improving adjudicative processes, and a focused look at the Middle Rio Grande might be good steps to ensure that New Mexico continues to work toward balancing future projected water supply and demand.

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Water Rights Management In NM and Along the MRG: Is AWRM Sufficient?


Court Cases:


Transboundary Waters: The Rio Grande as an International River

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 [hereinafter 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
“The great lengths to which the United States was willing to go in fulfillment of its ‘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.”


The Rio Grande Convention, helps explain the law of the river today.

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 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 flood waters 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

The 1906 Convention between the United States and Mexico for the Equitable Distribution of the Waters of the Rio Grande [hereinafter 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,
“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

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 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 [hereinafter 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 [hereinafter 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 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)
Water Marketing in New Mexico

By Jeremy Oat and Laura Paskus

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 New Mexico Office of the State Engineer [hereinafter 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 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 through 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...
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.

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.

According to the OSE, a party wishing to transfer a right must apply to the OSE 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 which 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 application is filed. The priority of a water right defined by federal law, such those of Tribes and Pueblos, is determined differently, but once determined, fits into the prior appropriation scheme for dealing with shortages.
Water Marketing in New Mexico

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 which 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 and 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 and 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.

Today’s Market

There is no clearing house 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 which 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

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.

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 increases transaction costs as buyers and sellers attempt to reduce risk, thus, hindering the economic functions and fluctuations of a healthy market regime.

There is no clearing house in New Mexico for tracking the sales of water, beyond the record of transfers at the Office of the State Engineer.
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 had 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 a removal of a key component of the 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.

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, the 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 a 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 or just 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.
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 the 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.

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N.M.S.A. 1978 § 72-1-2.1 Water Rights; Change in Ownership; Filing and Recording; Constructive Notice.
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N.M.S.A. 1978 § 72-4a-3, Definitions.
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Interviews:
Kyle Harwood, owner, Harwood Consulting, Santa Fe.
Water Trust Board

Background

In 2001, the Legislature passed the Water Project Finance Act. The Legislature 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.
Membership of the Board
The Board is composed of fifteen members, over half of whom are State officials. The State officials or their designees are as follows:

- State Engineer;
- Executive Director of the New Mexico Finance Authority;
- Secretary of Environment;
- Secretary of Energy, Minerals and Natural Resources;
- Director of the Department of Game and Fish;
- Executive Director of the New Mexico Municipal League;
- Executive Director of the New Mexico Association of Counties;
- President of the Navajo Nation; and
- Director of the Department of Agriculture.

Six members of the public represent the following stakeholders and are appointed by the Governor and confirmed by the Senate:

- the environmental community;
- an irrigation or conservancy district that uses surface water;
- an irrigation or conservancy district that uses ground water;
- acequia water users;
- soil and water conservation districts; and
- one public member appointed by the Commission on Indian Affairs.

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; and
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 and the Water Trust Fund. 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.

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.
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 60-75%, conservation 15-30%, watershed management 5-15%, and endangered species act and flood prevention up to 10% 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 which 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 anticipated 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 structured to consist of the distribution from the Water Trust Fund (a minimum of $4 million per year) and 10% 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.

In 2005, the Act was amended to specify that 10% of the funds in the Water Project Fund shall be dedicated to the State Engineer for water adjudications and 20% 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 Water Project Fund (WPF) may be used for loans and grants to qualified entities and projects approved by the Legislature. The Act authorizes the New Mexico 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, leading 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 Governor’s Office. Estevan López, Director of the Interstate Stream Commission was appointed to be 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 Infrastructure Development Division (WWIDD) was created within the New Mexico 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 and to create a uniform application to streamline the process 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 application process requires completion of a Uniform Funding Application as well completion of a specific Water Trust Board application for the appropriate project category. Both applications 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 or not the applicant has an asset management plan, whether or not the applicant has secured water rights, and information on rate ordinances and water and wastewater rates.

The current Water Trust Board application requires current financial information including lists of all debt, the three most recent fiscal year audit reports, and sources of local funding. The Water Trust Board application also requires information on secured water rights, on 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.

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 dedicates 10% 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% severance tax bond distribution the WPF receives an annual distribution from the Water Trust Fund as prescribed by law (N.M.S.A. 1978, § 72-4A-8B). The Water Trust Fund was endowed with $40 million in 2006. A constitutional amendment was approved to make the Water Trust Fund a permanent fund.

Since its inception the WTB has awarded approximately $212 million for projects statewide:

<table>
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<th>Year</th>
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<tr>
<td>2010</td>
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</tr>
</tbody>
</table>

As of this date (November 2010) the Water Trust Board awaits notification from the State Board of Finance on the estimated severance tax bond distribution. HB 882 requires notification to the WTB by January 15, 2011. 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)
Updated (2010)

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Jana Amacher, New Mexico Finance Authority
Stefanie Beninato, Ph.D., J.D.
Brigette Buynak, Esq.
Strategic Water Reserve

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 (see Section 72-1-2.2 through 2.5 N.M.S.A. 1978).

The Strategic Water Reserve (the “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 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

“...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, July 2007)

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.
In 2009, due to the state’s budget crisis the Legislature deauthorized 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 Chapter 72-14-3.3 N.M.S.A. 1978. 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. 72-14-3.3 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 N.M.S.A. 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 has been determined a priority reach/basin every year, beginning in 2006. The Lower Pecos River was a priority reach/basin in 2006, 2007 and 2009. 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.

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 (instream flow) purposes. Consistent with the intent of the Reserve legislation, the ISC sells the water to the Bureau of Reclamation (Reclamation) for the below-described purpose.

In 2008 the ISC advertised its interest in 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 is scaling 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.

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 (as described above) 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.

On the Rio Grande the ISC has entered into a lease agreement to lease approximately 32 acre-feet of water to be used for the Silvery Minnow refugium that ISC has developed 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 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.

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.

Overall, 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.
Updated (Nov. 2009)

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