The Rio Jemez
Background Papers on the Adjudication Proceeding and Water Rights Issues

Prepared by the
Utton Transboundary Resources Center
University of New Mexico
School of Law

Research and writing by:

Paul Bossert, UNM School of Law
Marcos Martinez, UNM School of Law
David Duffy, UNM School of Law
Jose Pavón, UNM School of Law
Christine Casey, UNM Water Resources Program
Geoff Klise, UNM Water Resources Program
Jeanine McGann, UNM Water Resources Program

Edited by Susan Kelly, Associate Director, Utton Center

Special thanks to Herb Becker, Esq.
for providing comments on the draft papers

Fall 2004

These materials were developed as part of a learning experience for students and as general background information for the Utton Center Conference held August 31 – September 3, 2004, at the Hyatt Tamaya Resort at Santa Ana Pueblo, *Transboundary Waters: Crossing Boundaries for Sustainable Solutions.* They are not intended for use in legal proceedings

Table of Contents

Page

I. The Process of Stream Adjudications 1

II. The Jemez River Adjudication 5

III. Hydrology of the Jemez River Above and Below the Pueblos of Jemez, Santa Ana and Zia 9

IV. Federally-Reserved and Indian Water Rights 27

Federally-Reserved Rights 27
The Pueblos 30
Jemez River Claims 31
Summary of Current Positions 33

V. Development and Implementation of the 1996 Irrigation Agreement 37

Pueblo Perspective – The Pueblo of Zia 43
Perspectives from the Pueblo of Jemez 45

VI. Urban Growth and Proposed Water Rights Transfers from the Jemez River Basin 49

VII. Timeline of Water Uses on the Jemez River, Sandoval County, New Mexico 55

I. THE PROCESS OF STREAM ADJUDICATIONS

The Jemez River Adjudication must be understood in the context of stream system adjudication under New Mexico law. A stream system adjudication is the judicial determination of the quantity and priority of all individual water rights to a common source of water. Rights to a common source include claims to surface water and hydrologically-connected ground water. All claims must be brought together in one lawsuit and each claimant must have notice and an opportunity to be heard before a court fixes its property rights.

New Mexico law mandates that the State Engineer perform a hydrographic survey and investigation of each stream system and source of water in the state, starting with those streams used primarily for irrigation. *See* NMSA 1978, § 72-4-13 (2004). This statute mandates that the state engineer obtain and record "all available data for the determination, development and adjudications of water… including the location and survey of suitable sites for dams and reservoirs…" *Id*. Upon completion of the survey, the state engineer delivers a copy of the relevant parts of the survey to the attorney general to determine "the use of the waters of such system together with all other data in his possession necessary for such determination." NMSA 1978, § 72-4-15 (2004); *State ex rel. Reynolds v. Allman*, 78 N.M. 1, 427 P2.d 886 (1967). At the State Engineer's request, the attorney general shall enter suit on behalf of the state, "in order that the amount of unappropriated water subject to disposition by the state…may become known, and shall diligently prosecute the same to a final adjudication." *Id*.

However, if private parties initiate the adjudication suit, the attorney general is not required to bring suit, though the attorney general may intervene if it is in the "public interest." *Id*. Thus, the state engineer may initiate a hydrographic stream survey or a judge may order that

a hydrographic stream survey be done. The courts will not assess the cost of hydrographic surveys made by the state engineer against the water claimants.

Once the state, federal government, or private party files an adjudication suit, the court joins all users of the common source of water, including known claimants and all other claimants who can be "reasonably ascertained." NMSA 1978, § 72-4-17 (2004). *See also*, the *McCarran Amendment*, 43 U.S.C. § 666 (2004) (The McCarran Amendment waives sovereign immunity of the U.S. government for state water rights adjudications). The court serves unknown claimants with notice of the adjudication suit through publication. All claimants receive a sub-file number from the court, which the court uses to organize the suit.

Regardless of who brings suit, the legal basis for each water right in an adjudication must be identified and surveyed, described in a written offer, and conveyed to the water right owner who may accept or reject the offer. If the party rejects the offer made by the state, the party may litigate the offer with the state through evidentiary hearings before the adjudication judge. A court has the discretion to submit questions of fact to a jury or it may appoint a special referee to "take testimony and report upon the rights of the parties." NMSA 1978, § 72-4-18 (2004).

After individual water rights claims have been adjudicated between the state and the individual claimants in the first stage, the court confirms any agreements that have been reached between claimants. Defendants may, however, challenge the water rights of other claimants during the *inter se* phase of the adjudication.

Once hearings on any challenges are completed, the court issues a final decree. The parties pay to receive a certified copy of the decree, which the court clerk prepares and files in the office of the state engineer. The decree fixes the priority, amount, purpose, periods and place

of use for each party in the lawsuit. If a party uses the water for irrigation the decree includes the specific tracts of land to which the water is appurtenant. *See* NMSA 1978, § 72-4-19 (2004).

An adjudication suit might be brought in federal court rather than a state court for tactical reasons or if federal interests dominate, and therefore require the specialization of the federal court system. Adjudications are currently underway in both federal and state court in New Mexico. Attorneys for the State Engineer have the responsibility to conduct adjudications on behalf of the State of New Mexico. Most adjudications necessarily involve tribal claims because of patterns of aboriginal settlement in New Mexico near water sources.

The San Juan Adjudication, in progress, deals with the claims of the Navajo Nation, the Jicarilla Apache, and the Ute Mountain Ute Tribe. The Pecos Adjudication, one of the longest running adjudication suits in New Mexico, was initiated in 1956 and is still underway. The Pecos suit includes claims by the Mescalero Apaches. Water rights claims of Jemez Pueblo, as successor in interest to Pecos Pueblo, are also pending in that case. Other adjudications of several tributaries of the Upper Rio Grande were started between 1966 and 1983 and involve the rights of thirteen Pueblos, the Jicarilla Apache Tribe, the federal government, municipalities, community ditches, and thousands of individual defendants.

The complexity of an adjudication suit is proportional to the size of the stream system that is the subject of the suit. The adjudication of the Lower Rio Grande began in 1985 and involves an irrigation district, a major federal reclamation project, municipal and county water rights, a state university, the City of El Paso, and thousands of individual groundwater claims within Doña Ana County. The claims of Ysleta del Sur Pueblo are also pending in the Lower Rio Grande adjudication.

II. THE JEMEZ RIVER ADJUDICATION

The Jemez River Adjudication illustrates the practical difficulties of the adjudication process and how a particular adjudication suit deals with novel legal problems. The Jemez Adjudication is taking place in federal court under the title *United States v. Abousleman, et al.,* No. 83cv01041-JEC. The United States filed the lawsuit in its own behalf and on behalf of the Jemez, Santa Ana, and Zia Pueblos to adjudicate the waters of the Jemez Stream System after it performed a hydrographic survey as authorized by NMSA 1978 §72 – 4 -16. *See*, http://www.seo.state.nm.us/publications/01-02-annual-report/appendix-a.html.

In 1988, hearings were held on questions related to the historic use of water. In 1990, the Special Master recommended rulings to the Court on summary judgment motions argued by the State of New Mexico, the United States, the Pueblos and non-Indian defendants. In 1991, a proposed partial final decree on non-federal, non-Pueblo water rights claims was prepared and made available for inspection. *Inter se* objections were filed by Jemez, Santa Ana, and Zia Pueblos to sixty-one subfiles. The Special Master determined the elements of each non-Pueblo water right, per NMSA 1978 §72-4-19 (1985). The Pueblos *inter se* challenges asserted that defendants' water rights had been abandoned and reverted to the State of New Mexico. The non-Pueblo defendants filed a motion for summary judgment on the Pueblos' 61 challenges. The Special Master dismissed eighteen of the objections and one was dropped. After hearing evidence on the remaining forty-two, the Special Master issued a report and recommendations on April 24, 1995.

The Court has entered orders on the objections. A memorandum opinion from the *Abousleman* adjudication is used as authority by parties when the validity of water rights is being determined and abandonment is an issue. The Court determined whether and when the state may

infer that water rights holders have abandoned their right to water. In the memorandum opinion, the Court first considered the existing New Mexico law of abandonment. *See United States v. Abousleman*, CIV 83-1041 SC (Feb. 7, 1994). The Court found the case of *New Mexico ex. rel. Reynolds v. South Springs Co*., 80 N.M. 144 (1969) especially useful. The Court read *South Springs* to say that abandonment requires acts demonstrating non-use coupled with the claimant's intent to abandon a water right. A claimant can expressly declare an intent to abandon or a court may infer a claimant's intent if acts or omissions are inconsistent with an intent to maintain a water right. *South Springs* also indicates that the holder of the water right may bear the burden of proof by clear and convincing evidence if enough time passes. Still, *South Springs* said little about the length of time required to shift the burden of proof to the claimant. Thus, the *Abousleman* Court held that a claimant's failure to use water for sixteen years, "without other evidence, may be sufficient to raise a rebuttable presumption" of abandonment. This presumption shifts the burden to the water right claimant to present evidence of excuse for non-use. At the same time, the Court held that eight years of non-use, absent other evidence, is not enough time to raise this presumption. The Pueblos raised the issue by producing evidence of the non-Pueblo users' non-use of water on 42 tracts of land, sufficient to overcome the motion for summary judgment.

It is not clear whether the holding of this memorandum opinion will apply to state courts since it was a federal district court applying and interpreting state law. Certainly, the opinion is persuasive authority on the length of time of non-use necessary to raise the presumption of abandonment.

The Court has not yet issued a ruling on the 1990 Special Master's report and in 2004 the parties were asked to present briefs outlining their current positions with regard to the Indian

claims. The positions of the parties on the Indian claims are summarized from the briefs of the parties and discussed below in Section IV, *Summary of Current Positions.*

Inter se proceedings on the Jemez River Stream System were conducted in 1989, and an order on *inter se* proceedings, as amended, was issued in March of 2000. Significantly, no objections were filed during the *inter se* proceedings. The Partial Final Decree included a 200+ page addendum that summarized all non-Pueblo, non-federal water rights. Copies of the addendum may be obtained at http://www.seo.state.nm.us/water-info/CourtOrders/Jemez River.html, or by contacting the Office of the State Engineer.

The addendum identifies and summarizes the subfile order related to each water user's right, defining the priority date, legal location, acreage of irrigated lands, maximum duty of water to be delivered to the farm headgate, and consumptive irrigation requirement of crops. Of special note, the water rights delineated in the 2000 Partial Final Decree may be subject to the general *inter se* proceedings involved in all adjudicated water rights of the Rio Grande Stream System and its tributaries.

The impact of the Partial Final Decree on non-Pueblo, non-federal water rights holders is clear: "all parties whose water rights are adjudicated herein, their successors, assigns, and lessees, are permanently enjoined from any diversion, impoundment or use of public waters of the Jemez River Stream System, except as adjudicated herein." (at p. 3).

On December 1, 1999, the Court entered an order adjudicating all the rights of the federal agencies except for a claim filed on April 2, 1991 under the Wild and Scenic Rivers Act. On December 1, 2000, the court entered a partial final decree on the non-Pueblo, non-federal proprietary rights in the Jemez River system. A final decree on the Jemez River system depends on continuing negotiations among the Pueblos and the other parties and also on resolution of the

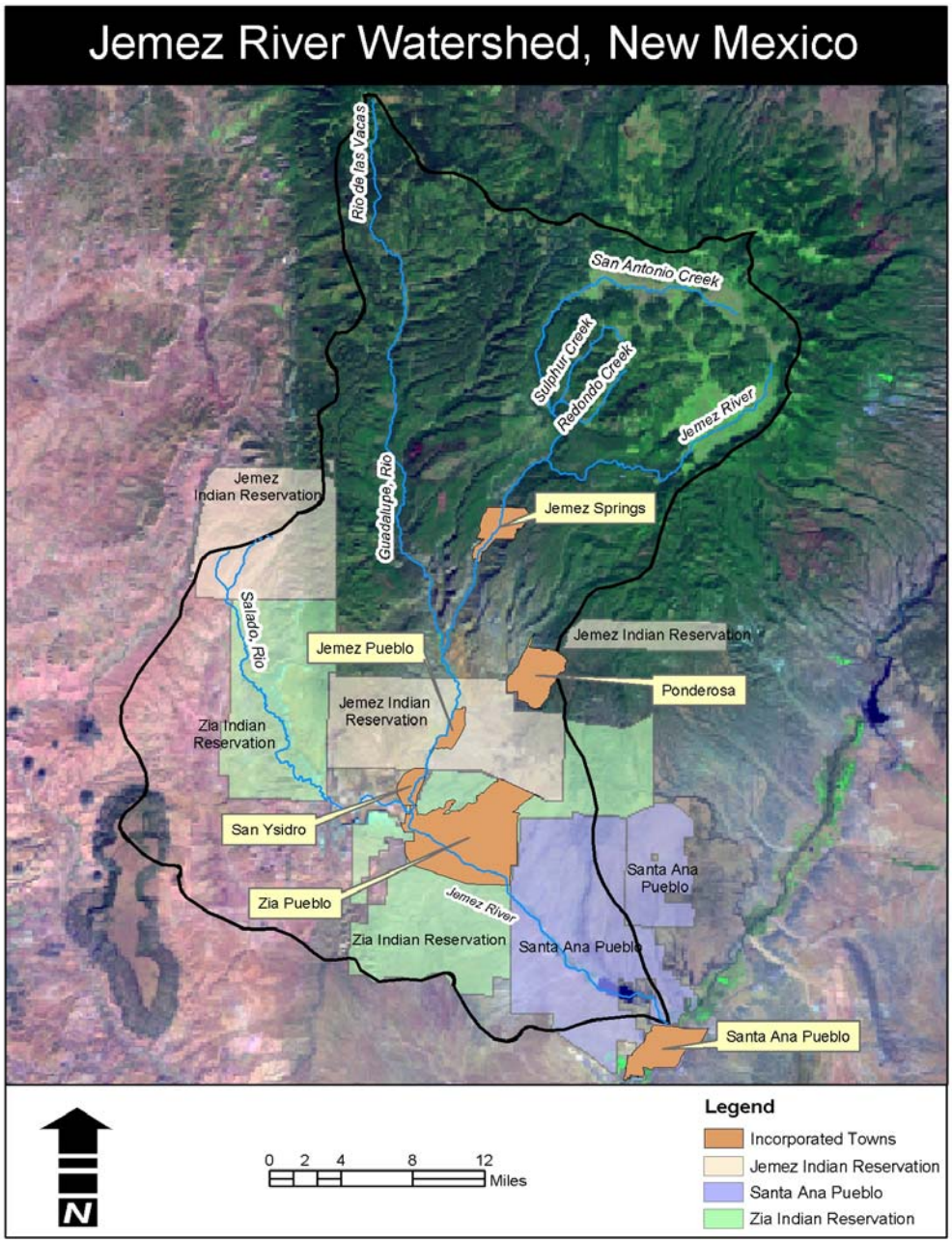
outstanding federal claim under the Wild and Scenic Rivers Act, which in turn awaits resolution of the Chama Adjudication.

During a drought in the summer of 1996, the Pueblos of Jemez and Zia moved for a temporary restraining order (TRO) and preliminary injunction, seeking to cut off irrigation uses above the Pueblos that the Pueblos claimed diminished surface water supply for their agricultural activities. Injunctive relief was not granted by the Court. Instead, an order was entered adopting a stipulation between the Pueblos and the community acequias. (See more detailed discussion of this agreement below in Section V, *Development and Implementation of the 1996 Irrigation Agreement*.)

III. HYDROLOGY OF THE JEMEZ RIVER ABOVE AND BELOW THE PUEBLOS OF JEMEZ, SANTA ANA AND ZIA

Introduction

This paper is a generalized summary of available data sources that describe the hydrologic setting of the Jemez River on and adjacent to three Native American Pueblos: Jemez, Santa Ana and Zia, as well as portions that flow through both private and federal lands. A generalized map of the Jemez River watershed is presented below.



Geographic Setting

The Jemez River is located in north-central New Mexico, beginning its journey as water falling in the Jemez Mountains that rise above 11,000 feet. The climate is semiarid with annual precipitation ranging between 10 and 20 inches consisting of both rain and snowfall.[1] For the time period of April through September, the area receives two-thirds of its annual precipitation.

The Jemez River's headwaters drain the southern portion of the Valles Caldera via the East Fork of the Jemez River. From here, this water flows southwest to the head of San Diego Canyon where it joins drainage from the north and west portions of the Caldera, via San Antonio Creek.[2] As the Jemez River flows south through the canyon, it gains shallow groundwater captured from a variety of warm and cold springs derived from shallow aquifers and deeper geothermal activity in the Caldera, specifically at Soda Dam and Jemez Springs.[3] Winding its way south, the Jemez captures water from many ephemeral and intermittent streams and the confluence of Rio Guadalupe, a major tributary draining the Nacimento Mountains and the high-elevation San Pedro Parks. Just south of the town of Cañon, the River flows into lands controlled by the Jemez Pueblo. The Jemez River exits through the southern boundary of the Jemez Pueblo north of the small town of San Ysidro. Just south of San Ysidro, where state highway 44 meets the beginning of state highway 4, the River flows into the Zia Pueblo. Continuing south, the Jemez River joins with an extensive lower elevation tributary, the intermittent Rio Salado,[4] which picks up water west of the Jemez Mountains in the San Juan Basin. From here, the Jemez River flows southeast through Zia Pueblo, then into adjacent Santa Ana Pueblo. Before the

[1] Craigg, S. D. 1992. *Water Resources on the Pueblos of Jemez, Zia, and Santa Ana, Sandoval County, New Mexico*. Water Resources Investigations Report 89-4091. Denver, Colorado: U.S. Department of the Interior U.S. Geological Survey (p. 5). (Referring to the U.S. Soil Conservation Service, 1972).
[2] Trainer, F. W., R. J. Rogers, and M. L. Sorey. 2000. *Geothermal hydrology of Valles Caldera and the southwestern Jemez Mountains, New Mexico*. Water-Resources Investigations Report 00-4067. Denver, Colorado: U.S. Department of the Interior U.S. Geological Survey.(p. 45)
[3] *Id*. at 37.
[4] See Craigg, *Supra* note 1 at 5.

Jemez reaches the Rio Grande, it is dammed to provide flood and sediment control via the Jemez Canyon Dam and associated reservoir (now Tamaya Dam and Reservoir), drained since 2001.[5] The Jemez Canyon Dam is located a mile east of the eastern boundary of the Santa Ana Pueblo, creating a reservoir with a length of 5 miles. Four miles of the reservoir occur on Santa Ana Pueblo lands.[6] Past the Jemez Canyon Dam, the Jemez River drains into the Rio Grande at an elevation of approximately 5100 feet. The total area drained by the Jemez River and its tributaries above the Jemez Canyon Dam is 1,368 miles.[7]

Geologic Setting

The geology and hydrology in the Jemez River basin is complex with many structural components controlling both surface water and ground water flow. Formations in the study area include Precambrian igneous and metamorphic complexes, to Paleozoic and Mesozoic sedimentary deposits and younger Cenozoic sedimentary and volcanic deposits. The youngest Cenozoic sedimentary deposits in the study area include quaternary valley-fill alluvium, terrace-gravel deposits and travertine deposits.[8] The Jemez River, paralleling the Jemez Fault, cuts through limestone just south of the crater rim to just south of Jemez Springs, where it cuts into sandstone and shale beds, marking the last outcrop of limestone along the river. The river remains in these sandstone and shale beds until just north of the Jemez Pueblo, where it cuts and fills younger alluvial deposits.[9] From Jemez Pueblo to the confluence of the Rio Grande, the Jemez River flows on alluvium derived from young depositional events and re-worked older Santa Fe group sediments. For a more detailed description of rock types and tectonic settings,

[5] McAda, D. P., and P. Barroll. 2002. *Simulation of ground-water flow in the Middle Rio Grande Basin between Cochiti and San Acacia, New Mexico*. Water-Resources Investigations Report 02-4200. Albuquerque, New Mexico: U.S. Geological Survey.
[6] U.S.G.S. Topographic Map 1:100,000 quadrangle, Albuquerque, 1978
[7] The Water Assembly. 2003. Middle Rio Grande Regional Water Plan 2000-2050. Albuquerque, NM. 12.3-3. (This is from chapter 12, the Rio Puerco y Rio Jemez subregional water plan.)
[8] See Craigg, *Supra* note 1 at 9.
[9] See Trainer, *Supra* note 2 at 52-53.

see Craigg (1992) and New Mexico Geological Society's 47th Annual Field Conference Guidebook on the Jemez Mountains Region (1996).

The area surrounding the Jemez River is broken up into four unique structural zones defined by either faulting or volcanism. From west to east, the structures are: the southeastern San Juan Basin located west of the Pajarito fault, the southern extent of the Nacimiento uplift located north between the intersection of the Jemez fault and the Pajarito fault, the southern extent of the Jemez Mountains volcanic field including Bandelier tuff and undivided volcanic rocks, and the western extent of the Rio Grande rift, located east of the Jemez Fault.[10] The Jemez Fault Zone is described as an 'expression' of what is termed the Jemez Lineament; a line of volcanic features extending southwest to northeast from Arizona to Colorado. The three fault bounded regions form three ground water provinces in the Jemez River watershed that will be discussed in a following section of this report.

Hydrologic Setting

The Jemez River flows through a riverbed of sedimentary and volcanic rocks in the north, changing to a riverbed of younger Quaternary alluvium as the river gradient decreases.[11] The alluvium is described as coarse gravel with a reported depth of 85 feet near the northern extent of the Jemez Pueblo, to finer grained sands and silts derived from older Santa Fe Group deposits located adjacent to and underlying the younger Quaternary alluvium with a reported depth of 65 feet near the Jemez Canyon Dam.[12]

[10] See Craigg, *Supra* note 1 at 10.
[11] See Craigg, *Supra* note 1 at 12. In addition, see Plate 3, "Geologic map of the pueblos of Jemez, Zia, and Santa Ana, Sandoval County, New Mexico."
[12] See Craigg, *Supra* note 1 at 14.

In the upper reaches of the river, the East Fork of the Jemez River and San Antonio Creek gain water from shallow subsurface sources within the Caldera.[13] The USGS performed a seepage study in March 1984 to determine whether the Jemez River was gaining or losing water. The study area ranged from gaging station 08234000, Jemez River near Jemez to a station located near where the Jemez River enters the Santa Ana Pueblo. Results indicated an increase in river discharge,[14] leading the USGS to conclude that the river at the time of the measurement within that 24 mile reach was gaining water from shallow subsurface flow. The next seepage study conducted in August 1984 approximated summer conditions for the Jemez River. Results indicated the River was losing water between the Pueblos of Zia and Santa Ana.[15] These results suggest the Jemez River is primarily gaining in the winter and losing below the Pueblo of Zia during the summer. These results were generally confirmed by McAda and Barroll in their model of the middle Rio Grande Basin, with the exception of gains in the winter from the reach between the Zia and Santa Ana Pueblos.[16]

Surface Water Hydrology

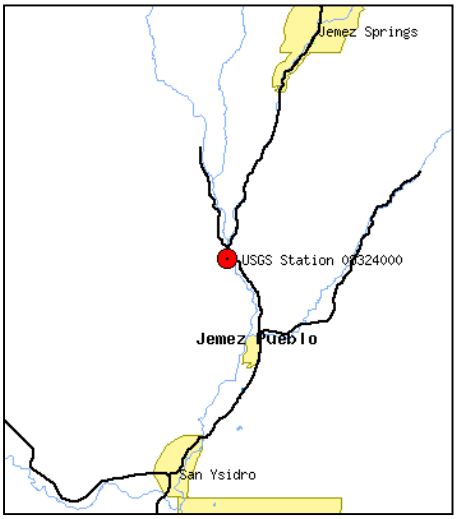
According to Craigg, the Jemez River is fed primarily by ephemeral tributaries with a few partially intermittent tributaries.[17] The Jemez River discharges approximately 45,000 acre-feet/year to the Rio Grande, and is the largest tributary to the Rio Grande within what is designated the Middle Rio Grande Basin.[18] There are many stream-flow gaging stations located on the Jemez River with partial records extending back to 1936.[19] Some stations are no longer

[13] See Trainer, *Supra* note 2 at 13.
[14] Craigg, S. D. 1984. *Hydrologic data on the Pueblos of Jemez, Zia, and Santa Ana, Sandoval County, New Mexico*. Open-File Report 84-460. Denver, Colorado: U.S. Department of the Interior, Geological Survey. See also Craig, *Supra* note 1 at 74-75.
[15] See Craigg, *Supra* note 1 at 74-75.
[16] See McAda and Barroll, *Supra* note 5 at 64.
[17] See Craigg, *Supra* note 1 at 67.
[18] See McAda and Barroll, *Supra* note 5 at 9.
[19] See Craigg, *Supra* note 1 at 94.

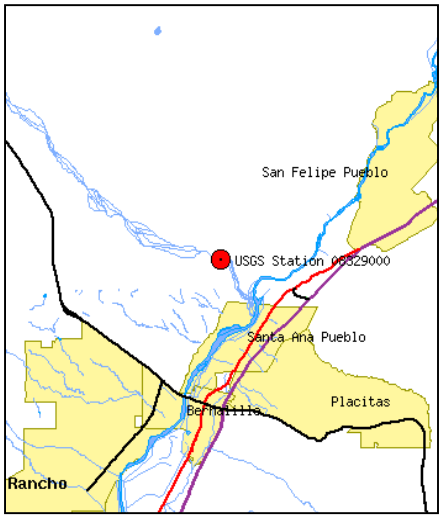
gaged and some were only gaged during the irrigation season for a limited number of years. Two gages with the most data are station 08329000 – Jemez River below Jemez Canyon Dam and station 08324000 – Jemez River near Jemez. Both of these stations are continuously monitored by the U.S. Geological Survey and stream flow data can be found at http://waterdata.usgs.gov/nm/nwis/.

Shown below are maps of the two stations currently monitored by the USGS.

Jemez River near Jemez – 08324000

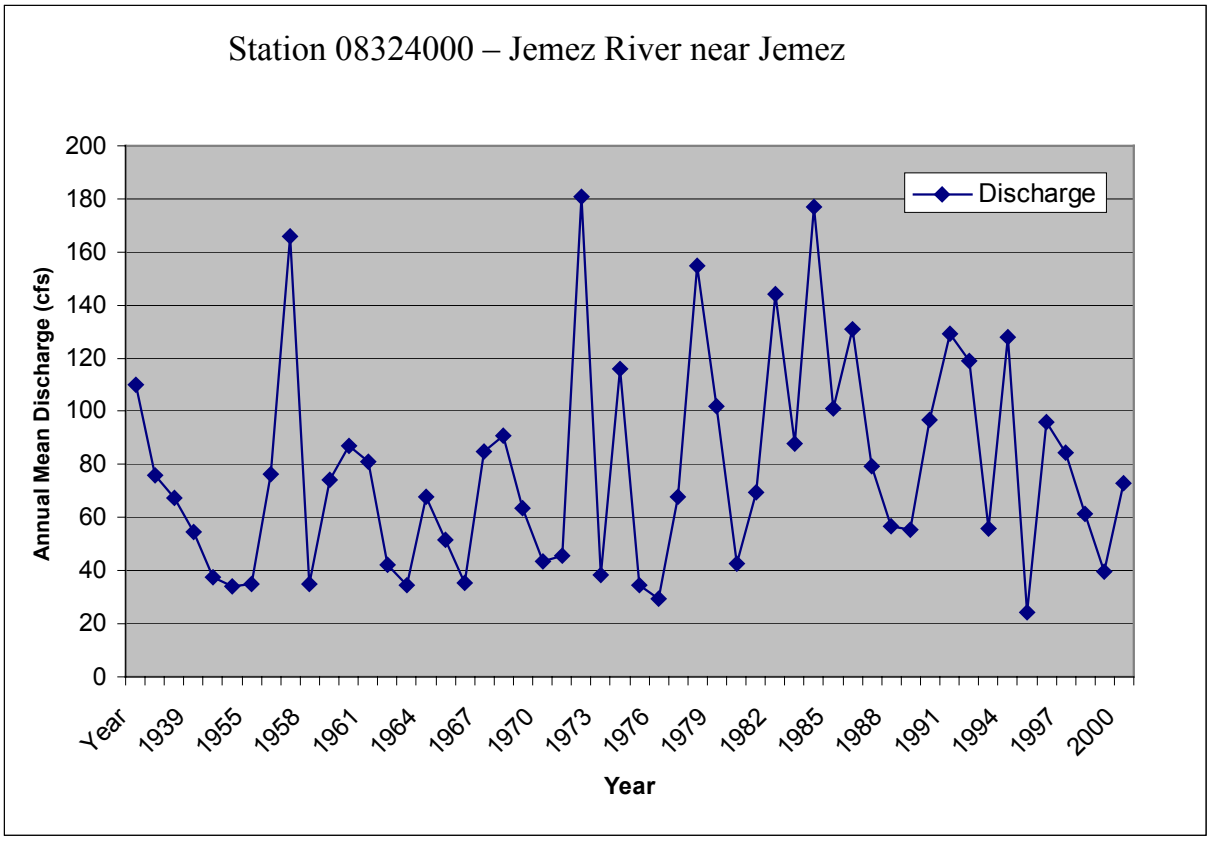


Jemez River below Jemez Canyon Dam – 08329000

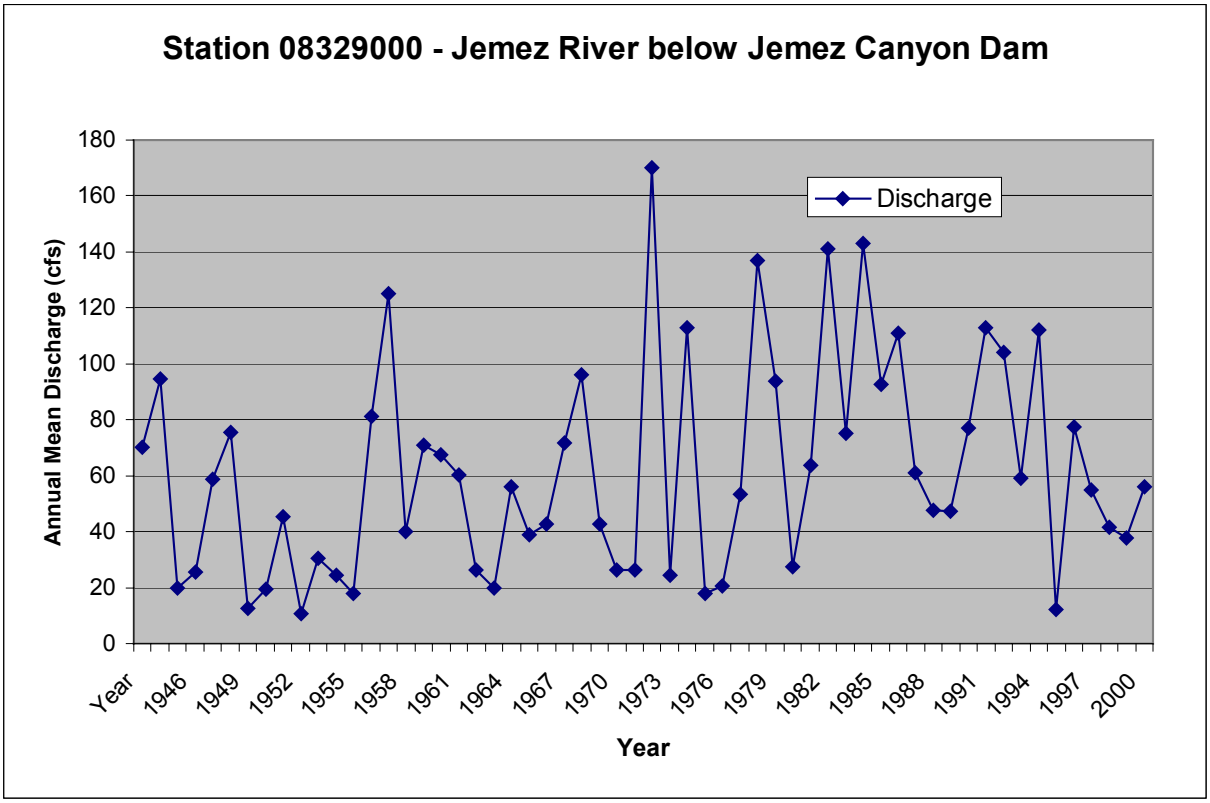


Shown below is a graph for gaging station 08324000 – Jemez River near Jemez from 1937 to 2001. This reflects the most current data available on the USGS webpage. The values represent annual mean discharge in cubic feet per second (cfs). Using this data, the mean discharge between 1937 to 2001 at Jemez River near Jemez is 78.3 cfs. According to the USGS, over one-half of annual Jemez River streamflow at this station originates as snowmelt.[20]

[20] See Craigg, *Supra* note 1 at 70.



Shown below is a graph for gaging station 08329000 – Jemez River below Jemez Canyon Dam from 1944 to 2001. This reflects the most current data available on the USGS webpage. Using this data, the mean discharge at Jemez River below Jemez Canyon Dam between 1944 to 2001 is 61.7 cfs.



There is a great deal of information that can be downloaded and analyzed from this site, including daily streamflow statistics, water quality, ground water levels and peak flow data. The above graphs are an example of what the data can represent.

Hydrogeologic Setting

Ground Water Provinces

Groundwater can be divided into three distinct provinces in the vicinity of the Jemez River. These provinces dictate groundwater flow direction within each major and minor aquifer. One control mechanism that separates the provinces is the presence of faults that intercept and redistribute ground water. The other mechanism is the change in bedding geometry as a result of faulting. Both shallow and deep aquifers have some degree of hydraulic continuity with the Jemez River since they either discharge to the river or receive discharge from the river. The

provinces are the San Juan Basin, Sierra Nacimiento and Jemez Valley. The description for these provinces is taken from Craigg (1992).

San Juan Basin

Geographically, the southeastern portion of the San Juan Basin falls within the political boundaries of Jemez and Zia Pueblos and is the western-most province of the three. The two faults separating this province from the others are the Pajarito fault creating the adjacent Nacimiento uplift, and the Tenorio fault, delineating the western portion of the Rio Grande rift in this study area. The age of geologic strata in this province ranges from Pennsylvanian through Cretaceous. These beds dip steeply to the west-southwest near the fault zone and gradually flatten out in a westward direction.[21]

Water in the younger Cretaceous rocks generally flows west-southwest, along the dip of the units. Water flow in stratigraphically older units underlying the Cretaceous rocks is influenced by larger regional flow from recharge areas originating in the more mountainous portions of the San Juan Basin province and exhibit a southeast-east trending flow towards the north-south trending Pajarito and Tenorio faults. Water discharges from these units as springs primarily located north of the Rio Salado on lands controlled by the Pueblo of Zia.[22]

Sierra Nacimiento Province

This province is somewhat V-shaped, pointing south with the tip of the V at the northern extent of the Zia Pueblo, south of the Rio Salado and the west tail of the V extending north through the Pueblo of Jemez and slightly extending into the eastern boundary of additional lands owned by the Pueblos of Zia and Jemez. The province is bounded to the east by the Jemez fault and extends parallel to the Jemez River, crossing it near Jemez Springs. This province is

[21] See Craigg, *Supra* note 1 at 12.
[22] See Craigg, *Supra* note 1 at 58-59.

described as the southernmost extension of the Nacimiento uplift. The age of geologic strata in this province ranges from Precambrian basement rocks to young Quaternary alluvium.[23]

Recharge to this province is primarily from precipitation in the northern Jemez Mountains. Ground water discharges to springs located on both the Pajarito fault to the west and the Jemez fault to the east. Most of these springs are located within lands controlled by the Jemez Pueblo, with some discharging on Zia Pueblo land. Ground water also discharges to the Jemez River and Rio Guadalupe, making gaining streams as they travel through the Sierra Nacimento province.[24]

Jemez Valley Province

This province is located in the middle to eastern portions of the Jemez Watershed. The province is bounded to the west by the Jemez fault and the Tenorio fault, which both mark the western boundary of the Albuquerque Basin formed by the Rio Grande rift. The geologic strata consist of Tertiary and Quaternary rocks and sediment of the Santa Fe Group and younger Quaternary alluvium in stream channels.

One of the larger aquifers in the vicinity of the Pueblos is in the Tertiary and Quaternary Santa Fe group, gaining recharge from precipitation directly on the aquifer and through arroyos cutting into the aquifer. Ground water flow in the Santa Fe group aquifer is generally south-southeast, following the path of the Jemez River. An alluvial aquifer exists along the reach of the Jemez River with its northern extent reaching just north of the Jemez Pueblo, extending southeast where the Jemez meets the Rio Grande. This alluvial aquifer gains water from stream channel runoff, nearby bedrock units, discharge from the Jemez River, and from the underlying

[23] See Craigg, *Supra* note 1 at 12.
[24] See Craigg, *Supra* note 1 at 59-60.

Santa Fe group aquifer. Water flow in this alluvial aquifer generally follows the course of the Jemez River.

Geothermal and Nonthermal Contribution

Ground water heated by the geothermal reservoir in the Valles Caldera portion of the Jemez Mountains exits through the Jemez Fault Zone, rising to the surface as hot springs in the upper portions of San Diego Canyon.[25] This water is thought to discharge as far south as Soda Dam and Jemez Springs where it intersects a fault and rises to the surface. Nonthermal water derived from meteoric origin (rainfall) found in the Valles Caldera has higher bicarbonate and lower chloride concentrations when compared to hydrothermally heated ground water. This water mixes with hydrothermal water before and during discharge to San Diego Canyon.

As recognized by Balleau in 1980, the largest single source of geothermal water derived from Valles Caldera discharges at Soda Dam, and part of it does so as dispersed seepage into the stream bottom.[26] Quantities estimated by Balleau in 1980 were 455 acre-feet per year at Soda Dam and Jemez Springs, and a larger contribution of 724 acre-feet per year as dispersed seepage into the Jemez stream bottom above San Ysidro.[27] Adding the two together, the input to the Jemez River from known geothermal sources is 1,179 acre-feet per year. Trainer states a similar discharge scenario separating geothermal input into the Jemez River from two sources; geothermal water moving through rock fractures exiting at the surface at Soda Dam and Jemez Springs, and mixing with alluvial ground water downstream of Soda Dam and Jemez Springs.[28]

[25] See Trainer, *Supra* note 2 at 26.
[26] Balleau, P. 1980. Geothermal hydrology at Jemez Mountains – Ion balance and flow depletion. 16p. (P. 4-5)
[27] Id. at 14.
[28] See Trainer, *Supra* note 2 at 45.

At the confluence of the Rio Grande, only 2.0 to 3.6 cubic feet per second of the water from the Jemez River is derived from geothermal sources near and around Valles Caldera.[29]

Water Quality

The quality of Jemez River water is influenced by natural inputs from the Valles Caldera geothermal reservoir and from anthropogenic, or human-derived sources. Overall, Jemez River water is considered fresh, based on specific conductance measurements,[30] however water becomes more mineralized the closer the Jemez River gets to the Rio Grande, gaining water from mineralized tributary streams, primarily the Rio Salado.[31] The next three sections describe natural impacts to water quality, man-made impacts that impact water chemistry and macroinvertebrate health, and results from the most recent Total Maximum Daily Load study that set water quality standards in the Jemez River and its tributaries.

Geothermal and Nonthermal Impacts

As mentioned in the previous section, geothermal input to the River is estimated at 1,179 acre-feet/year, which when compared to the total amount of discharge by the Jemez into the Rio Grande of 41,000 acre-feet per year (Section 4.1), constitutes approximately 3% of the total discharge.

Some of the major elements and minerals associated with geothermally derived waters entering the Jemez River are bicarbonate (HCO_3), calcium (Ca), carbonate (CO_3), chloride (Cl), magnesium (Mg), potassium (K), silica (Si), sodium (Na) and sulfate (SO_4). Trace elements associated with these waters include arsenic (As), boron (B), bromine (Br), fluorine (F), and lithium (Li).[32] Hydrothermally heated ground water comes into contact with rocks inside the

[29] See Trainer, *Supra* note 2 at 2.
[30] See Craigg, *Supra* note 1 at 76.
[31] See Craigg, *Supra* note 1 at 80-81.
[32] See generally Trainer, *Supra* note 2.

caldera, dissolving some of these elements and compounds into solution. This water can mix with metoric nonthermal water in places before it enters San Diego Canyon, where for example it can pick up other compounds such as carbonate from subsurface limestone before it exits at Jemez Springs, Soda Dam, or the base of the Jemez River.

Chemically, surface water in the headwater reaches of the Jemez River resembles the underlying volcanic rocks with the main discharge coming from either cold or warm springs.[33] As the water flows further south towards Soda Dam and Jemez Springs, the water becomes more mineralized due to contribution from these highly mineralized springs.[34] When the Jemez River reaches the point where it captures the Rio Guadalupe, water quality reflects the surficial geology drained by the Rio Guadalupe, primarily consisting of volcanic and limestone rocks.[35] The water quality of the Jemez River changes to reflect a mineral spring source downstream from Jemez Pueblo resulting in higher concentrations of Cl and Na.[36] Water quality changes dramatically when water from the Rio Salado enters the Jemez River because the Rio Salado drainage basin picks up high concentrations of minerals from surrounding limestone and gypsum formations in the San Juan Basin. The specific conductance of this water has been measured as high as 18,500 microsiemens in the Jemez River below the Rio Salado.[37]

Man-Made Impacts

A water quality study was conducted for the Jemez River in 1987 to determine the health of the Jemez River and its tributaries by looking at benthic macroinvertebrates and chemical constituents in the water not derived from the hydrothermal and nonthermal waters emanating from the Valles Caldera. The two most identifiable sources of potential point-source pollution

[33] See Trainer, *Supra* note 2 at 45.
[34] *Id*. at 46.
[35] *Id*. at 46.
[36] *Id*. at 46.
[37] See Craigg, *Supra* note 1 at 76.

are two wastewater treatment plants that discharge to the Jemez River under federal National Pollutant Discharge Elimination System (NPDES) permits; the Jemez Springs wastewater treatment facility and the Jemez Springs Municipal School.[38] Potential sources of non-point pollution were identified from land-use such as grazing, timber, mining and recreation. Data collection took place during four days in August at times before, during and after a storm event, and one day in October. The report found that set water quality standards were violated for pH, temperature, fecal coliform bacteria, ammonia, conductivity, dissolved oxygen, and total phosphorus. The results indicate that land use practices have impacted the Jemez River in the past, decreasing water quality.

The results of the benthic macroinvertebrate collection and classification indicated the lowest sites downstream from Jemez Springs were inhabited predominately by aquatic insects that can tolerate poor quality, or more mineralized water.[39] This suggests that either water quality worsens downstream: 1) from man-made land use decisions, 2) from naturally derived sources such as water exiting from the caldera, or 3) from water becoming more mineralized as it picks up lower tributary streams.

Jemez Watershed Total Maximum Daily Load

Due to threatened water quality in the Jemez watershed, the New Mexico Environment Department conducted a Total Maximum Daily Load (TMDL) study to satisfy federal 303(d) requirements under the Clean Water Act. This study identified stream reaches with 'parameters of concern' and set a 'TMDL', which is represented as units such as pounds per day for specific metal or turbidity, or for temperature in units of joules per meter^2 per second per day, for example.

[38] Potter, Deborah U. 1988. Intensive water quality survey of the Jemez River and its tributaries in Sandoval County, New Mexico. 39p. (p. 7
[39] Id. at 25.

Point-source discharges regulated under NPDES permits include the Village of Jemez Springs, the Jemez Valley School Campus, and the Seven Springs Fish Hatchery. Non-point discharge pollution results from land use, including mining, grazing, recreation, irrigation and development.[40]

TMDL's were set for pH and conductivity in Sulphur Creek and for temperature and conductivity in Redondo Creek; both of which are tributaries to San Antonio Creek. TMDL's set in San Antonio Creek include temperature and turbidity. The East Fort Jemez River TMDL is set for turbidity. The East Fork and San Antonio Creek meet at the southern portion of Valles Caldera where they join to form the Jemez River. Primary land use/cover above this intersection (located in Valles Caldera) is National Forest and range land. One TMDL is set in the Jemez River for aluminum and is likely attributed to natural sources and picked up by sediment from the up-stream reaches.[41] Aluminum is also present in the Rio Guadalupe and is listed as the only TMDL for that river. The Rio Guadalupe flows into the Jemez River above Jemez Pueblo. The report concludes with specific management plans to try and limit the pollutant loads derived primarily from non-point sources, some as shown above from natural sources.

Water Use

Water from the Jemez River is used for a variety of purposes, including irrigation, domestic, and recreation. Ground water is typically used for domestic purposes and surface water primarily used for flood irrigation. Both ground water and surface water use reduce the amount of total discharge in the Jemez River and reduce the amount of water that reaches the Rio Grande. Water that is not consumptively used by domestic purposes and growing crops returns

[40] New Mexico Environment Department. 2002. Total Maximum Daily Load (TMDL) Report for the Jemez River Watershed. Prepared by Research Technology, Inc. 15.
[41] See Jemez TMDL, Supra note 40 at 91.

to the Jemez River and surrounding aquifers by way of return flows from irrigation ditches and septic systems.

The following sections referring to water use by the Pueblos are taken from Craigg (1992) describing surface and ground water use by Jemez, Zia and Santa Ana Pueblos. Data describing non-Pueblo water users is gathered from the Water Assembly's 2003 Rio Jemez Subregional Plan; a chapter in the Middle Rio Grande Regional Water Plan. For a detailed look at the Water Assembly's characterization of the Rio Jemez, see their webpage: http://www.waterassembly.org/9information/9_17.html.

Domestic Supply

Pueblo Use

All three Pueblos rely on ground water for their community based needs. Jemez Pueblo relies on two wells drawing water from the shallow alluvial aquifer that is considered "fresh" with low concentrations of dissolved minerals.[42] It is possible that other wells might be used by Jemez Pueblo since Craigg's assessment was completed in 1992. High arsenic concentrations were observed in 1984 and were thought to be attributed to hydrothermal water leaking upward from deeper ground water formations.[43]

Zia Pueblo obtains community water from two wells completed in the Santa Fe group aquifer. It is possible that Zia Pueblo uses other wells for community supply in 2004 since Craigg's assessment was completed more than 12 years ago. Water quality in these wells as measured in 1984 is considered "fresh" with low concentrations of dissolved minerals.[44]

As of 1992, Santa Ana Pueblo obtained Jemez basin water from a single windmill-driven well completed in the Santa Fe group aquifer. Water quality data was not available for this

[42] See Craigg, Supra note 1 at 84.
[43] Id. at 84.
[44] Id. at 84.

well.[45] Again, this assessment was completed 12 years ago and Santa Ana Pueblo might be using a different well for their water supply needs.

There are other users of water for domestic purposes located above and below the Pueblos. Additional water use occurs above Jemez Pueblo into the upper reaches of the Jemez River.

Non-Pueblo Use

The towns of Cañon, Ponderosa, San Ysidro, and Jemez Springs in the Jemez watershed supply water to approximately one-third of the watershed's total of 4,073 residents.[46] The remaining two-thirds of the population use water from individual domestic wells, not served by the public water purveyors.[47] The Water Assembly, citing Wilson, 2003 show that total depletions to surface water by these four public water systems in 2000 was 46.54 acre-feet and total depletions to ground water was 38.10 acre-feet.[48]

Irrigation

Pueblo Use

Jemez Pueblo diverts surface water just south of station 08234000 - Jemez River near Jemez. This water flows through a series of man-made ditches to be used on cropland. Excess water returns to the Jemez River from soil seepage and from ditches that capture excess water and transport it back to the Jemez River. According to Craigg, the water used for irrigation is not highly mineralized and is safe to use for growing crops.[49] According to the Water Assembly, quoting the Environmental Assessment of Environmental Quality Incentives Program for Pueblo of Jemez Tribal Trust Lands, 2002, "the land use comprises of 2,100 acres irrigated cropland."

[45] Id. at 85.
[46] See Supra, note 7 at 12.6-3.
[47] Id. at 12.6-4.
[48] Id. at 12.6-4.
[49] See Craigg, Supra note 1 at 85.

The Water Assembly, quoting Shomaker in 1988, mentioned that the amount of acreage that Jemez Pueblo can irrigate is 1,828 but at that time they were irrigating only 301 acres.[50]

Zia Pueblo diverts water from the Jemez River near San Ysidro, upstream from where the Rio Salado enters the Jemez River.[51] This water flows through a series of man-made ditches to be used on cropland. Excess water returns to the Jemez River from soil seepage and from ditches that capture excess water and transport it back to the Jemez River. This water is more mineralized than water used upstream by Jemez Pueblo, but is considered safe to use for growing crops.[52]

It was suggested that if the Pueblos decide to use ground water for irrigated agriculture, the Santa Fe group aquifer is the best source based on water quality due to its lower mineral content.[53]

Non-Pueblo Use

The Water Assembly put together a table showing acres irrigated and consumptive use in acre-feet by non-Pueblo users in 1987. Total water rights for irrigated acres amounted to around 1,223 with a consumptive water use of 2,446 acre-feet. These water users are above and in-between the Pueblos and are parties to the 2000 Partial Final Decree dividing and apportioning water use between them and the Pueblos.

[50] See Water Assembly, Supra note 7 at 12.6-5.
[51] See Craigg, Supra note 1 at 85, 116.
[52] Id. at 85, 116.
[53] Id. at 84.

IV. FEDERALLY-RESERVED AND INDIAN WATER RIGHTS

Federally-Reserved Rights

Throughout the Jemez River basin are parcels of land within the aegis of the federal government. These include National Forest land, the Indian Pueblos, Bureau of Land Management land, and National Monument land. Congress has sovereign power over federal lands, including the power to declare rights to the use of water appurtenant to the land. Congress has seldom explicitly invoked this power, so federal water rights have come into existence where the courts have found Congressional intent to do so implicit in Congressional action.

In 1888, the federal government created the Fort Belknap Reservation for the Gros Ventre and Assiniboine Indian Tribes. Located along the Milk River, the Reservation comprised a small portion of the Tribes' historic territory and was located within what was soon to become the State of Montana. The adjacent territory was opened to settlement and development, and by 1898, settlers upstream began diverting water from the river for irrigation. The Fort Belknap Indians complained that the irrigators were infringing on their right to the full flow of the river. The Indians had never diverted water, as was required to assert a right to water, so the irrigators claimed that the water was unused and available for appropriation.

In *Winters v. United States*, 207 U.S. 564 (1908), the Supreme Court held that the Fort Belknap Reservation was created to provide the Indians the means to transform themselves into a "pastoral and civilized" people. Therefore, when Congress reserved the land, it also by implication reserved the water which would make it possible for the purpose to be accomplished. Although the Court noted that the Indians were living on land that had been part of their aboriginal territory, the decision emphasized Congressional action and Congressional intent as

the basis of the Tribes' right to Milk River water. Thus, the date that Congress acted to reserve the land became the priority date of the water right.

This type of water right, generally referred to as "*Winters*" rights, was quantified in 1963, in *Arizona v. California*, 373 U.S. 546 (1963). The Supreme Court was called on to adjudicate the rights to Colorado River water among several states. The Court used reasoning similar to that in *Winters* and held that Congress could not have intended to settle the Indians on desert land without access to water necessary for them to survive. Furthermore, Congress intended for the reservation to meet not only the Tribes' present needs, but their future needs as well. The Court upheld the Special Master's ruling that the future and present needs of Indian reservations should be measured by irrigable acerage. This is an amount of water sufficient to irrigate all the reservation land that was practicable, regardless of how much was under irrigation at the time or how much had ever been irrigated. This is known as the Practicably Irrigable Acreage standard.[1]

In contrast, the Supreme Court interpreted the *Winters* doctrine much more narrowly with regard to non-Indian federal lands. In *United States v. New Mexico*, 438 U.S. 696 (1978), the issue was the amount of Gila River water that attached to land reserved as part of the National Forest for aesthetic, recreational, wildlife preservation or stock-watering. Again, Congress removed land from the public domain with no explicit mention of water. Because of the lack of an explicit reservation of water, the Court held that the amount encumbered by the reservation was no more than the amount necessary to fulfill the primary purpose of the reservation. The Court referred to the Organic Administration Act of 1897, where the authority to create National

[1] The Practicably Irrigable Acreage (PIA) standard requires a technical test using a variety of disciplines, such as a soils scientist, hydrologists, on-farm engineers, agronomists, irrigation engineers, and economists. These disciplines are employed to determine if an irrigation project can be constructed that will produce crops where the benefits are equal to or greater than the cost. If the PIA test is met, the tribe is awarded a water right for the project.

Forests originated, for the fact that the primary purpose of the National Forest was to provide "a continuous supply of timber." Therefore, the quantity of the water right appurtenant to National Forest land was held to be the amount necessary to meet the primary purpose of the forest. This is a federally-reserved right. Water for other purposes must be acquired under state law.

Federally-reserved water rights continued to follow the standards set forth in these decisions (Practically Irrigable Acreage for Indian reservations and "primary purpose" for all other federal lands) until 2001, when the Arizona Supreme Court, in an adjudication of rights along the Gila River, recognized a more flexible standard with regard to Indian reservations. The Court noted that the geography of Indian reservations varies greatly. For tribes that happen to be located on level, fertile ground near a source of water, Practicably Irrigable Acreage describes a large percentage of their land, while tribes that are located at higher elevation or latitude, on rocky ground, far from a dependable source of water have very little land that can be irrigated. Also relevant was the fact that irrigated agriculture is becoming less economically feasible, and therefore, archaic as a measure of the water to which a tribe is entitled. The Court proposed a forward-looking "Homeland Standard" which weighed all of the Tribes' economic activities, agricultural and non-agricultural, to determine the amount of water necessary for their continued well-being. *In Re the General Adjudication of All Rights to Use Water in The Gila River System and Source*, 35 P.3d 68 (2001).[2]

[2] The "homeland test" was developed earlier by the New Mexico State District Court in State v. Lewis, (Fifth Judicial District 1989) that concerned the Mescalero Apache Tribe's water rights, as reflected in the Court's Findings of Fact and Conclusions of Law. The case was later reversed by the N.M. Court of Appeals on other grounds.

The Pueblos

The Pueblo Indians of New Mexico occupy a unique position in American history and water law. The Pueblos occupy the same lands that they held at the time of contact with the Spanish. For roughly 75 years after the 1848 Treaty of Guadalupe Hidalgo, federal protection of the Pueblos waxed and waned under a series of shifting Congressional mandates, Supreme Court decisions and administrative postures. Thus, for some period of time, under a shifting legal framework, the Pueblos arguably owned their land outright, selling it and encumbering it as any other landowner. In 1926, the Supreme Court held in *United States v. Candelaria*, 271 U.S. 432 (1926) that the Pueblos were subject to the non-intercourse act and never had the authority without federal approval to convey their property and therefore all non-Indian claims to ownership within the boundaries of the Pueblos was invalid.

The New Mexico Enabling Act of 1910, which paved the way for statehood, declared the Pueblos to be "Indian Country," and therefore under the protection of Congress. The Supreme Court, in *United States v. Sandoval*, 231 U.S. 28 (1913), held that this meant that all sale of Pueblo land to non-Indians had been illegal. In 1924, Congress created the Pueblo Lands Board to settle claims arising from the return of Pueblo lands under *Sandoval*. The Board was created under the Pueblo Lands Act, Act of June 7th, 1924, 43 Stat. 636, and a series of land board reports were issued addressing claims to ownership under the criteria of the Act. Following the board reports, a quiet title action was filed for each Pueblo under the Act. Once these actions were final after appeal or the time for appeal expired, the majority of land claims were finalized. But the questions remained: how much water were the Pueblos entitled to and what was the date of priority?

In the case of *New Mexico v. Aamodt*, 618 F.Supp. 983 (1985), the Federal District Court of New Mexico, after extensive historical research, held that because the Pueblos had occupied their land and used water since aboriginal time, their water rights were prior and paramount to all others. The quantity was fixed at the amount necessary to irrigate any and all lands under cultivation between 1848 (Treaty of Guadalupe Hidalgo) and 1924 (Pueblo Lands Act). This is known as the Historically Irrigated Acreage doctrine. *Aamodt* is the only case in which Historically Irrigated Acreage has been applied, and the issue has never reached the U.S. Court of Appeals or the Supreme Court. The *Aamodt* case is now moving toward a negotiated settlement.

Jemez River Claims

In 1990, the U.S. Attorney, on behalf of the Pueblos of Jemez, Santa Ana, and Zia, and the State of New Mexico, filed Proposed Findings of Fact and Conclusions of Law in the adjudication of water rights in the Jemez River system.

The United States noted that no *repartimiento* was ever in place on the Jemez River. Under Spanish rule, a *repartimiento* was an administrative decree defining quantity and priority of water rights. After the end of Spanish rule, the Mexican government recognized the rights of the Pueblos and never enacted a *repartimiento* on the Jemez. In the absence of any action by either sovereign to limit or quantify in any way the Pueblos' water rights, the United States asserted that Spanish and Mexican law are irrelevant to quantification of the Pueblos' present rights.

The United States distinguished Indian-reserved water rights from federally-reserved water rights. According to the United States, the reasoning underlying the *Winters* decision is that the origin of the tribes' rights to water pre-date any treaty with the United States and, where

there is a treaty, the tribes reserve any pre-existing rights not granted away by the treaty. The Pueblos, in exercising their aboriginal rights, are in the identical situation as the tribe in the *Winters* case *before* it had an agreement with the United States. The Pueblos have not granted any of their aboriginal rights away by treaty.

The Pueblos have had lands restored that had passed out of their ownership during the colonial period, but that were part of their aboriginal lands. The United States acknowledged that such land is federally-reserved and therefore subject to the *Winters* doctrine in determining water rights. However, the United States also cited the *Big Horn River System* adjudication, ratified by the Supreme Court, for the doctrine that such lands get a priority date of when the tribes first owned the land, and not the date of restoration. *In Re: The General Adjudication of All Rights to Use Water in the Big Horn River System and All Other Sources, State of Wyoming*, 753 P.2d 76 (Wyo. 1988).

The United States proposed a quantification standard for Indian Reserved Rights based on the amount necessary to fulfill the purpose for which the Pueblos own their land. That purpose is to provide them a permanent homeland. This would include water for the Pueblos' present and future agriculture, domestic, stockwater, religious, municipal, and industrial needs. This is similar to the Homeland standard subsequently created by the Supreme Court of Arizona in the Gila River system adjudication in 2001.

The United States distinguished these aboriginal, Indian-reserved rights from federally-reserved rights, but went on to state that the Pueblos would not object to quantification based on the federally-reserved standard, Practically Irrigable Acreage. The United States proposed that Practically Irrigable Acreage be defined as lands capable of sustained irrigation with present day technology, regardless of economic feasibility. That definition may not be consistent with the

New Mexico Court of Appeals ruling in *State v. Lewis*, 861 P.2d 235 (N.M App. 1993). Faced with a detailed proposal by the Mescalero Apache Tribe, in support of its quantification claim according to the Practically Irrigable Acreage standard, to build an elaborate irrigation infrastructure for the purpose of growing specialty crops high in the mountains, the Court upheld the trial court's finding that the projects were not economically feasible. Therefore, the Tribe was not entitled to water to support those projects. The Court defined PIA as it was defined in Big Horn I:

> "those acres susceptible to sustained irrigation at reasonable costs." The determination of practicably irrigable acreage involves a two-part analysis, i.e., the PIA must be susceptible of sustained irrigation (not only proof of the arability but also of the engineering feasibility of irrigating the land) and irrigable "at reasonable costs."

Big Horn I, 753 P.2d at 101; *State v. Lewis*, 861 P.2d at 247.

The United States mentioned the Historically Irrigated Acreage standard, but only to dismiss it. The Proposed Findings of Fact and Conclusions of Law stated that there is no factual or legal basis for applying that standard to the Pueblos in this case.

Summary of Current Positions

In briefs filed with the Court this summer (2004), the parties are in agreement that the Pueblos have *some* quantity of an aboriginal water right, with a priority of "time immemorial," or "first priority" as characterized by the State. They disagree on the other characteristics of that right.

The State of New Mexico derives its position mostly from *New Mexico v. Aamodt*, 618 F.Supp. 993 (D.C.N.M. 1985), in the adjudication of the Tesuque & Nambe/Pojoaque Stream System, which involved the Pueblos of Nambe, Pojoaque, San Ildefonso, and Tesuque. The *Aamodt* court held that, under Spanish and Mexican law, the Pueblos had water rights that were

flexible according to their needs. The Treaty of Guadalupe Hidalgo brought the Pueblos into the United States with their water rights intact. Congress fixed the quantity of the Pueblos' water rights with the Pueblo Lands Acts of 1924 and 1933. Therefore, according to *Aamodt*, the Pueblos' aboriginal water rights include all uses through 1924. All other water rights that the Pueblos may claim arise under the State's law of prior appropriation.

The State argues that *Aamodt* was incorrect in extending aboriginal priority to all uses through 1924. They point out that the Treaty of Guadalupe Hidalgo protected *all* water rights, not just the Pueblos', therefore, the 76-year extension of flexibility in quantity to the Pueblos' right is at the expense of all other rights holders on the river. The State argues that all quantities were fixed by the Treaty, in 1848.

The United States, for the Pueblos (hereafter "US/Pueblos"), also argues that *Aamodt* was incorrect, but that it was incorrect in finding <u>any</u> restriction of the Pueblos' aboriginal water right. They state that the right that was fixed by the Treaty was the flexible right according to the Pueblos' needs. Furthermore, that right has never been restricted or revoked, and so remained valid and intact until the commencement of a quantification procedure, in this case, 1988, the appointment of the Special Master in the present suit. One of the fundamental tenets of Indian law is that Indians retain all aboriginal rights until and unless they are restricted or taken by an explicit act of Congress. *U.S. v. Winans*, 198 U.S. 371 (1905). The US/Pueblos proffer that neither the Pueblo Lands Acts of 1924 and 1933 nor any other congressional act explicitly restricts the Pueblos' aboriginal water right. In fact, they cite language in section nine of the 1933 Act ("Nothing herein contained shall . . . be construed to deprive any of the Pueblo Indians of a prior right to the use of water . . . .) as indication of Congress's intent to preserve the Pueblos' rights.

The State raises the spectre of an ever-expanding right to water for the Pueblos, arguing that recognition of the Pueblos' interpretation would make administration of water rights continuously litigious, if not impossible. If state law does not apply to quantification of the Pueblos' rights, but quantification is a necessary element in the functioning of the state water law system, then the Pueblos' rights will be unrestricted by state law. But, the State argues, Congress clearly intends that the states will govern water law, so the Pueblos' interpretation is untenable.

The Pueblos and the United States respond that federal law controls the adjudication of the Pueblos' rights and that there is no federal law authority for an expanding right to water. Rather, federal law recognizes that the Pueblos have an existing right to put on a case for the use of water to meet their historic, existing and future uses and that once quantified, the decree is final and binding. Citing *United States v. Nevada*, 412 U.S. 434 (1973).

V. DEVELOPMENT AND IMPLEMENTATION OF THE 1996 IRRIGATION AGREEMENT

In 1996, the Jemez River Stream System adjudication process had not reached the Partial-Final stage. In the summer of 1996, under drought conditions, the Pueblos of Jemez and Zia exercised their yet unquantified but priority water rights by requesting the federal district court to issue a temporary restraining order (TRO) and preliminary injunction to cut off irrigation uses above the Pueblos. In essence, the Pueblos exercised their priority to waters of the Jemez River. The Pueblos supported their motion for injunctive relief by claiming diminished surface water supply for Pueblo agricultural activities. Ultimately, the federal district court did not grant either a temporary restraining order or preliminary injunction against non-Pueblo water users. Instead, as requested by the parties, the District Court adopted a "*stipulation*" order, generally referred to as the "Irrigation Agreement" or simply "the Agreement."

While the parties to *U.S. v. Abousleman* are still active in litigation, settlement may remain an option. Regardless, the 1996 Irrigation Agreement (Agreement), as a *living document*, continues to control the annual, seasonal and daily use surface waters for irrigation purposes from the Jemez River and upstream tributaries. The process followed in implementation of the Agreement protects each Pueblo's senior rights; yet non-Pueblo users are afforded access to water, except in times of severe shortage.

The parties to the Agreement include: 1) the Pueblo of Jemez; 2) Pueblo of Zia; 3) Non-Pueblo Water users, collectively named as the "Jemez River Water Users" (including the Jemez Springs Ditch Association; Nacimiento Ditch Association; San Ysidro Community Ditch Association; Canon Ditch Association; and the Ponderosa Ditch Association.)

The Agreement itself is written in plain language and is a reflection on the spirit of cooperation and deep sense of mutual respect the parties to the Agreement hold for one another as common users of the waters of the Rio Jemez.

The Agreement sets forth several basic tenets that reflect this spirit of cooperation. The Agreement opens with the statement, "The Pueblos and the Associations rely on the surface waters in the Jemez River Basin for irrigation purposes, and the Pueblos also rely on the Jemez River stream flows for religions and cultural purposes." The Agreement then clearly states the problem to be addressed, "the Jemez River does not always have sufficient water to fully meet the irrigation requirements of the Pueblos and the Associations, and the religious and ceremonial requirements of the Pueblos." Finally, the Agreement defines the hydrological and political reality of the Jemez River Stream System, "the Pueblos and San Ysidro Ditch Association are at the end of the Jemez River system, and thus are often water short even in years of average moisture."

At the time and continuing today, the Agreement recognized that the Pueblos hold senior priority water rights to any other irrigation rights in the basin. Despite the lack of finality in the complicated adjudication process, the Agreement summarized the historic demands of the seasonal water supply, recognizing that "70 percent of the Jemez River's annual flow comes during the months of March, April, May and June" and states that the common growing season for all irrigators extends from April through October, recognizing that peak demand for water supply is needed in July. The Agreement recognizes that all non-Pueblo water associations, except for San Ysidro, are located at higher elevations in the watershed and thus have "lower temperatures, shorter growing seasons and lower crop water demands."

The purpose statement of the Agreement is simply stated, yet powerful. "The parties desire to reach an agreement regarding distribution of surface water from the Jemez River system that will strive to satisfy the irrigation needs of the Pueblos, and to the extent possible, still allow upstream Associations to meet their member's needs." In doing so, the Agreement identifies the Mayordormo of each ditch association as the person with authority to act on behalf of and bind his or her ditch association, and recognizes the responsibility of the Mayordormo to inform each Association member to the terms and conditions of the Agreement.

As a living document, the original 1996 Agreement established the following terms:

- Surface water will be provided to the Pueblos and the Association in a series of weekly rotation schedules, varied by the degree of water shortage on a season-by-season basis and the amount of land placed under irrigation by the Pueblos.
- The Associations and individual members agree to not withdraw any groundwater for irrigation except in accordance with the agreed upon rotation schedule. This ban on non-Pueblo groundwater use for irrigation purposes did not impact the non-Pueblo use of groundwater for domestic uses as provided for by state law. However, all parties agreed that any groundwater use, other than for domestic uses, would authorize both the Pueblos and non-Pueblo Associations to seek injunctive relief.
- In order to give the Agreement the "highest status and fullest effect" the parties formalized its terms by having the Agreement and the rotation schedule adopted by the federal district court in the on-going litigation of *United States v. Abousleman*. The U.S. District Court of New Mexico responded in 1996 by incorporating the Agreement as a stipulation, embodied as a court order.

- The parties requested the U.S. District Court of New Mexico to "appoint an impartial Water Master" to administer and enforce the Agreement, with a contingency that if no Water Master was appointed, that the New Mexico State Engineer and the Bureau of Indian Affairs were to jointly administer and enforce the agreement. As a third contingency, the parties themselves were to appoint a committee including a representative of the Bureau of Indian Affairs, each of the Pueblos, and the Associations for enforcement purposes. Such contingencies were unnecessary.
- To ensure season-to-season adherence, the parties agree to a "starting rotation schedule" at the beginning of each irrigation season. The starting rotation schedule is to be based on hydrological reports published annually by the U.S. Department of Agriculture which predicts the surface runoff based on snowpack information. By defining the standard on which decisions will be made, the parties are to use the USDA reports to "evaluate water supply conditions and to determine the beginning rotation schedules."
- Either the Pueblo of Jemez or the Pueblo of Zia can request all parties to modify the original rotation schedule in response to water shortages. Pueblo requests can occur at any time during the irrigation season. Any increase in irrigation days for the non-Pueblo irrigators requires the approval of both Pueblos.
- The Agreement charges the Water Master with duties to monitor the stream conditions and irrigation needs of the Pueblos, and to implement the agreed upon rotation schedule between all users.
- The Agreement authorizes the Water Master to take "any appropriate action, including securing the diversion structures" to enforce the rotation schedule. As a practical matter, the Water Master monitors compliance throughout the irrigation season between all users

through formal and informal inspections. In keeping with the sprit of cooperation embodied by the Agreement itself, adherence to the rotation schedule is a duty of honor, although failure to comply may lead to legal action. In practice, however, compliance is typically maintained by both social pressure and periodic inspection of points of diversion by the Water Master.

- As a legal document crafted in layman's terms, the Agreement is not without teeth. The terms specify that if "any party is not satisfied with the action recommended or taken by the Water Master…that party may notify the Court, and request the court to order appropriate relief."
- In recognition that the Agreement is an interim solution, all parties recognize that the terms will be impacted in the final adjudication of *Abousleman*; and no party to the Agreement waived any legal position or argument it has or may assert in the ongoing adjudication process. The agreement expressly states that it is the parties' intention that the Agreement "may become part of a larger settlement of all issues" in the adjudication and the parties agree "to join together in the effort to settle the issues." To accomplish these goals, the Agreement states that "the United States, Associations and the Pueblos will appoint members to a negotiating body to meet for that purpose."
- In recognition of the common benefit to all parties, the Agreement identifies a common goal to maximize efficiency of diversion and irrigation systems, and to "work together to seek funding to implements improvements and to address the need for storage facilities."
- As a living document, the Agreement was placed into effect in 1996, and is to remain in effect until the federal court issues a final decree of water rights and priority in the Abousleman case; or until a final settlement of all the issues is achieved by the parties.

Conclusion

This paper does not attempt to define the contours of possible settlement, nor speculate on the outcome of final adjudication of Federal or Pueblo water rights in the Jemez River Stream System. However, this paper does attempt to highlight the effective and innovative interim strategy of water resource cooperation that has developed between Pueblo and non-Pueblo water users. It is hoped that the cultural perspectives provided herein will serve as a model for cross cultural respect and civility in the completion of water rights adjudication in New Mexico.

Pueblo Perspective – The Pueblo of Zia

In an informal interview on January 8, 2004, Zia Governor Peter Pino intertwined his personal perspective on the ongoing water rights litigation and value of water as both a traditional Pueblo irrigator and tribal leader.

At the Pueblo of Zia, both historically and in contemporary times, water for irrigation purposes is deeply connected to traditional Pueblo lifestyle. Historically, shortages of water impacting the Pueblo have been "taken care of internally" in keeping with the cultural calendar of the Pueblo's harvest cycle. However, by the early 1990's, internal sharing of shortages and rotation schedules were insufficient to meet the Pueblo of Zia's irrigation needs. In response, the Pueblo of Zia entered into an understanding with the Hispanic community of San Ysidro to facilitate the sharing of water. As the Pueblo of Zia is the furthest downstream water user in the Jemez River Valley, the water needs of the Pueblo are dependent on all upstream appropriations. As a practical matter, the village of San Ysidro is directly upstream of the Pueblo of Zia and both San Ysidro and the Pueblo share in the same hydrological fate.

By 1996, the Zia-San Ysidro irrigation agreement was due for renewal. According to Governor Pino, both the Pueblo of Zia and San Ysidro wanted to extend the sharing of shortages upstream, expanding the agreement to include the Pueblo of Jemez (directly upstream from San Ysidro) and other non-Pueblo communities located upstream of the Pueblo of Jemez. To facilitate the agreement, the respective community leaders were brought together for an inspection of each community's irrigation system. Governor Pino reflected on that historic gathering as the first time in his recollection that community leaders – both Pueblo and non-Pueblo – had taken the initiative to cooperatively address the common problem of water shortages.

From this gathering, many non-Pueblo irrigators learned first-hand of the Pueblo's modern irrigation system improvements, including underground distribution and diversion works. Funding for modern irrigation works on the Pueblo of Zia has been provided by various federal programs and improvement projects.

Governor Pino described the irony of the Pueblo's modern and efficient irrigation system, noting that through access to federal funding and commitment of Pueblo water users, the Pueblo of Zia has the best infrastructure for the delivery of water in the valley, yet has the least access to available water given their downstream location in the hydrologic system.

The Pueblo of Zia uses its modern irrigation system in accordance with a traditional Pueblo calendar where cultural activities take place during the month of March to signify the beginning of the planting season. In April of each year, traditional cultural activities take place at the Pueblo, including preparation of the ditches and fields for planting. As a result, the Pueblo does not actively utilize its irrigation system during the winter months.

Upstream, during winter months, non-Indian water users take advantage of the Pueblo's seasonal non-use. Although crops can not be actively grown in the winter, some upstream non-Pueblo users have shifted from active seasonal irrigation of their lands and converted their fields

to pasture in support of livestock. During the winter, fields are flooded, retaining as much moisture as possible to help alleviate lack of access to water available to non-Pueblo appropriators. In practice, this is a mode of accommodation that recognizes both senior Pueblo water rights and the reality of the rotation schedule embodied in the current Irrigation Agreement.

Governor Pino views the current Irrigation Agreement as the product of cooperation with upstream users, and particularly highlighted the leadership of Gilbert Sandoval, representative of the Jemez River Basin Water Users Association. Governor Pino reflected with humor and pride on the circumstances under which the current Irrigation Agreement was crafted. The core terms of the agreement were reached during a recess of the U.S. District Court of New Mexico, in Albuquerque, during a hearing on a motion for injunctive relief made by the Pueblo of Zia and Jemez in response to severe drought conditions.

According to Governor Pino, during the process of developing the agreement, the water users – Pueblo and non-Pueblo – "threw out the attorneys" and started working on a compromise that ultimately became the agreement in place today.

Under the terms of the Irrigation Agreement, the water users call a meeting in the late winter or early spring, just before the season starts, to determine the rotation schedule. Last season, due to the shortage of water, the rotation schedule called for the Pueblos of Zia and Jemez to receive six days of water for irrigation and upstream non-Indian users to irrigate for one day. A "day" is defined by access to water for a 24-hour period, however, last year, even the six day rotation was insufficient to meet the water duty of the Pueblo of Zia to maintain its crops, and it called priority. This was one of three times since inception of the Irrigation Agreement that the Pueblo of Zia has made a priority call.

Internal to the Pueblo of Zia, a standing resolution prohibits tribal members from utilizing domestic water (from ground water) for lawn watering, shade trees, car washing, and livestock consumption. This water is reserved for human consumption. Governor Pino commented that this ordinance has a cultural connection to the Pueblo's value of water. The Pueblo's domestic water system is supplied by groundwater, a resource with special cultural significance. At Zia, groundwater use is reserved for human uses; where surface water – although also holding significant cultural value – is reserved for uses that support traditional Pueblo means of subsistence and are in the spirit of conservation and resource protection. When surface water is used for irrigation, priority is given to the crops that are human consumed; next, to the crops for livestock purposes; and the last priority is pasture. If there is no water available, the pastures don't get watered.

Perspectives from the Pueblo of Jemez

In January 2004, David Yepa, Jemez tribal member and general counsel[1] for the Pueblo of Jemez, provided a unique insight to the Pueblo of Jemez's perspective on the role of water for both cultural and agricultural uses for his people. According to Mr. Yepa, the continued availability of water is of the utmost and primary importance to the Pueblo. Water for agricultural uses support the growth of crops that are essential for survival of the Pueblo's deeply rooted cultural and religious practices. For example, water is used for the cleansing of a tribal member's physical and emotional well being – as well as for growing corn, chili and other vegetables for use in ceremonies and dances. Harvested crops are used in preparing traditional foods for religious ceremonies and similar purposes. Mr. Yepa stressed that if water is not sufficiently available to grow crops, the Pueblo's traditional, cultural and religious practices will cease to exist. Inherent to the availability of sufficient water quantities for agriculture, the Pueblo also requires water to be of sufficient quality to meet the intertwined demands of domestic, agricultural and cultural/religious practices.

According to Mr. Yepa, the State of New Mexico's prior appropriation system has no overlap or significance to the Pueblo's cultural and spiritual value of water. Rather, it is the "time immemorial" or aboriginal priority that has a direct link to the Pueblo of Jemez' connection with the traditional uses of water. The Pueblo's cultural and religious practice have been handed down since time immemorial just like the Pueblo's use of water. The use of water and religious practices have co-existed and complement each other for thousands of years. The Pueblo's religious practices have continued to survive because water has been available and has been put to use long before the arrival of Spaniards or other foreigners.

Mr. Yepa indicated that the Pueblo of Jemez' historic practices of sharing shortages during drought conditions may have played a role in creating the 1996 Irrigation Rotation schedule. Older tribal members reminisce that the Pueblo, probably sometime in the 1950's, began using an internal irrigation rotation schedule. This rotation schedule allowed Pueblo farmers with fields located on the downstream end of the ditch to irrigate their lands first, then water is made available to other Pueblo irrigators upstream. Internally, tribal officials made sure that tribal members were notified when it was their turn to irrigate and worked the rotation from the south boundary to the north (upstream), requiring irrigators to work both day and night.

Prior to the 1996 Irrigation Agreement, the Pueblo of Jemez maintained both formal and informal agreements both with upstream and downstream water users For example, a 1931 agreement exists between the Pueblo and the community of Cañon that allows Cañon to divert water from the East and West Pueblo ditches. The Pueblo cleans the ditches annually and Cañon irrigators are to pay the Pueblo a $1.50 fee per acre irrigated. Only after Cañon irrigators paid the Pueblo the ditch fee were they allowed to divert water from the ditches. This 1931 Jemez-Cañon agreement is still in effect but fees are not being collected by the Pueblo.

[1] Mr. Yepa is a partner with the Albuquerque law firm of Roth, Van Amber, Rogers, Ortiz, Fairbanks & Yepa, LLP.

The Village of San Ysidro is located downstream and immediately south of the Pueblo of Jemez. San Ysidro irrigators divert water from the San Ysidro diversion dam, located on the Pueblo of Jemez. San Ysidro has a formal agreement (right-of-way) for the operation of the San Ysidro dam and ditch works. In the past, if there is no water being diverted at the San Ysidro diversion, San Ysidro was taking water directly from the Pueblo's West ditch at the south end of the Pueblo lands. This diversion was found to be unauthorized by the Pueblo and was corrected in 1995/1996 during a field visit. Essentially, according to Mr. Yepa, San Ysidro was in trespass for taking water from the Pueblo's ditch and deprived Zia Pueblo the tail water from Jemez Pueblo ditch.

Mr. Yepa does not believe that the existence of the historic agreements with non-Pueblo water users was the basis for the 1996 Irrigation Rotation agreement. According to Mr. Yepa, the current rotation schedule evolved from the dire need of the Pueblo to exercise its senior water rights. He states, "personally, I believe we made a priority call on the river to see whether the court and or the state would enforce the priority system. It was driven more so by the fact that Indian farmers were not getting water to irrigate and their crops were starting to dry up and die."

In 1996, after the parties decided that a water sharing agreement was the best solution, both Pueblo and non-Pueblo users sought legal and technical assistance for the drafting of the Agreement and the implementation and decided how and when a specific schedule would be used to start the rotation. Currently, the Pueblo's responsibility is to notify the non-Indians that it will implement the rotation schedule. Mr. Yepa states, "usually Jemez will contact the key parties, including the State Water Master and schedule a meeting to inform them when the rotation will start and at which schedule."

The Pueblo of Jemez has always begun the rotation on a six-day Pueblo and one-day non-Indian use. According to Mr. Yepa, this has worked out well to satisfy everyone's needs. Jemez has come close to changing the schedule to seven-day Pueblo but the monsoons come in to save the day.

The 1996 Agreement does not authorize the Special Water Master to enforce the agreement on Pueblo lands. Thus, the Water Master's primary responsibility lies off the reservation and exists to enforce the Agreement by protecting the Pueblo's senior priority water rights. According to Mr. Yepa, the Pueblo's two main ditches are never closed on the day non-Indians are to irrigate because the non-Indians in Cañon divert from the Pueblo ditches. San Ysidro can divert from the West Pueblo ditch when there is no water to divert from the river at their diversion (directly from the Jemez River). Mr. Yepa stated, "If the Pueblo farmers irrigate when they are supposed to, there is really no need for them to irrigate on the day non-Indians are irrigating. Once the crops are irrigated, the need to irrigate is not there for at least 3 or 4 days. Tribal farmers have learned to schedule their irrigation so that they don't have to irrigate on a non-Indian day."

From the Jemez perspective, the strength of the non-Pueblo compliance with the Agreement's terms lie outside the Agreement itself – and resides in the enforcement of the annual rotation schedule by the Water Master. "Enforcement of the rotation gives the Agreement strength. The Water Master's monitoring and enforcement makes the non-Indian

farmers comply with the rotation." As a practical matter, social pressure between individual non-Pueblo water users promotes compliance by all non-Pueblo water users. To enforce compliance with the Agreement, the Water Master would have to shut down the entire ditch at the diversion, "so if one individual does not comply, his neighbors will be very upset with him for his non-compliance." In addition to the Water Master, the mayordomos for each of the ditches are also responsible for monitoring compliance by farmers on their ditches. Jemez makes an effort to invite all the mayordomos to the rotation "kick off" meeting."

Interestingly, although both the Pueblo of Jemez and Zia hold senior priority water rights over the entire steam system, according to Mr. Yepa, there is no inherent conflict with competing senior priority as between the two Pueblos. "If Zia makes a priority call, it has no effect on Jemez. Zia has to call San Ysidro first then all non-Indians above Jemez -- their priority dates are junior to that of the Pueblos. The water called on the non-Indians should be sufficient to satisfy Zia's needs. San Ysidro, which has the largest acreage, will provide a lot of water to Zia when a call is made. Furthermore, Zia has a small storage pond that they can also release water from to meet their needs."

Internal water management issues, not directly tied to ongoing litigation are managed by the Pueblo of Jemez' Department of Resource Protection (DRP). The Jemez DRP is known locally and nationally as one of the premier tribal environmental, natural resource and cultural preservation programs. It is funded by a variety of federal sources, including the Department of Energy, Environmental Protection Agency, Bureau of Indian Affairs and other federal programs. In conjunction with the tribal utility program, the DRP manages the Pueblo's domestic water system and maintains a sophisticated surface water, groundwater and biological surveillance program.

Finally, Mr. Yepa provided a personal perspective on the value of water under contemporary drought conditions to the Jemez people. "As an irrigator, a Pueblo farmer certainly is affected by the current drought situation. The farmers are affected economically, culturally, and socially. Some families do depend on their agriculture products as a small revenue generating activity. Some people sell their vegetables, their crops, chile, corn, and alfalfa to supplement their household income. The drought has also affected the farmer's thinking in whether they should be farming during the drought. Some people are beginning to think that to farm during a drought would be a futile effort because all their labor and work to prepare the fields and plant would not result in harvested crops because there are no guarantees that they would get the water needed to sustain their crops."

Mr. Yepa indicated that there is a "very good chance" that the deeply rooted farming traditions of the Pueblo would be passed on to younger generations. However, he noted, "I think the real question is - how many of the younger generations will continue to farm? Looking back thirty to fifty years, almost everybody in the Pueblo was farming because that was their primary livelihood and three times as much acreage was being farmed during those years. In thirty to fifty years from now, there will probably be less farming, given the current trends evidenced by annual crop reports."

VI. URBAN GROWTH AND PROPOSED WATER RIGHTS TRANSFERS FROM THE JEMEZ RIVER BASIN

Introduction

The Jemez River is a tributary to the Rio Grande in Northwestern New Mexico. Types of lands in the Jemez River basin vary from federal agency lands to villages and Indian Pueblos, with uses such as farming, mining, timber and recreation. Most land users have corresponding water rights. Rio Rancho is located south of the confluence of the Jemez River and the Rio Grande and is hydrologically connected to the basin. Rio Rancho is a rapidly growing community which has attracted strong economic growth generators such as Intel, which are important to New Mexico's economy. As a result of conditions imposed by the State Engineer in approving Rio Rancho's request to increase ground water diversions, Rio Rancho must seek water rights from the Jemez River and the Rio Grande to offset the impacts of ground water withdrawals.[1]

The need to increase water supplies for municipalities is a major issue in New Mexico. Rio Rancho is just one of the cities that must increase its water supply and/or find a way to decrease demands. Rio Rancho will need to increase ground water pumping to accommodate its projected demand. Because the City relies on ground water for its supply, it must acquire water rights which will permit additional pumping from its existing wells. The State Engineer recognizes that the wells used by Rio Rancho, in the Santa Fe formation, are hydrologically connected to the Jemez River Basin and therefore have an impact on the surface water supply in the Jemez River.[2] The City is in the process of acquiring water rights from two land owners in San Ysidro. The rights to be transferred are for water that historically has been diverted into the San Ysidro Ditch above the Pueblos of Zia and Santa Ana. Water users in the Valley are

[1] Rio Rancho v. Thomas Turney, (NM Thirteenth Judicial District, 2003) pp. 2-7, 21-23.
[2] Ibid. pp. 9-12.

concerned that transferring the surface water right to a ground water withdrawal could potentially impact the ground water levels and the Jemez River since a continuous, but delayed, annual loss could result.

Current and Future Water Demands

Rio Rancho has grown substantially over the last twenty five years and its growth rate is expected to increase, creating the need for additional water supplies. The population in 1981 was only 10,000 people; by 2000, it had increased to 52,000.[3] The population is expected to increase 6% per year, and to double by the year 2020.[4] The City pumped 10,736 acre feet (3.5 billion gallons) of water in 2002, only slightly more than the average production amount from 1998 to 2002.[5] So, although the population is increasing, with a 17% increase in new accounts over the same period, the City has been maintaining water use due to conservation measures. The City is using less than the 12,020 acre-feet (3.92 billion gallons) annual diversion right that it holds, but is expected to exceed that amount within the next few years. By 2033, the city's water usage is expected to exceed the 24,020 acre-feet diversion right currently permitted and by 2040 it is predicted usage will triple the 2002 figure, making acquisition of water rights essential.[6]

The Need to Acquire Water Rights

The City of Rio Rancho depends solely on ground water for its water supply. The source is the Santa Fe formation, which is hydrologically connected to both the Rio Grande and the Jemez River.[7] Ground water pumping in Rio Rancho will affect the flow in the Rio Grande and

---

[3] Utility Department, City of Rio Rancho. Water Resources Management Plan. http://ci.rio-rancho.nm.us/RRUTL/WRMP.html, Accessed: 2/24/04.
[4] Id.
[5] Utility Department, City of Rio Rancho. Water Conservation-Usage Data. http://ci-rio-rancho.nm.us/RRUTL/UsageData.html. Accessed: 2/24/04.
[6] Rio Rancho v. Thomas Turney, (NM Thirteenth Judicial District, 2003) p.7.
[7] Id. pp. 9-10, 20.

Jemez River in that the amount being pumped will eventually be withdrawn from the surface water flows. The pumping amount permitted is limited to the amount of water rights the City possesses. Increased pumping by Rio Rancho will have to be offset through the purchase of consumptive use water rights from the river of impact.

The City first acquired a diversion right of 12,000 acre-feet per annum in 1979.[8] At that time, the State Engineer permitted diversion rights on the condition that the impact of pumping on surface flows be offset by the acquisition of water rights *by the time of physical impact on the river*. By 1994, the City had acquired 1,871 acre-feet per year (afy) of water rights to offset the effect of its pumping.[9] The 12,000 afy diversion right is sufficient for the City's projected demands and still meets the present demand, but with the rapid growth in progress there will be a need for additional water supplies within the next few years.

The City applied for an additional 12,000 afy diversion right in 1993 to be pumped from proposed new wells.[10] A hearing was held in 2001 resulting in a decision by the State Engineer requiring that the impact on surface water flows of Rio Rancho's new diversions be offset by the acquisition of water rights in the amount of the additional pumping *before pumping begins*. The fact that the Rio Grande is fully appropriated was cited.[11]

In the judgment by Judge Louis P. McDonald of the Thirteenth Judicial District, the City of Rio Rancho was permitted to increase ground water pumping to 24,020 acre-feet upon the

---

[8] Fields, Joseph, Memorandum, Office of the State Engineer. Application for Permit to Change Location of Well within the Rio Grande Underground Water Basin, pp. 1-2, 2001.

[9] Louise, Amy. Review of Thomas Williamson and City of Rio Rancho/Coda C. & Reba D. Roberson Revocable Trust UTA/Max Lee Kiehne & Barbara C. Kiehne Applications for Permit to Change Point of Diversion and Place and Purpose of Use from Surface Water to Ground Water Within the Rio Grande Underground Basin, Office of the State Engineer, p. 9 (2004).

[10] Id. at 1.

[11] In the Matter of the Application of the City of Rio Rancho for Permit to Appropriate Water and Drill New Wells, Office of State Engineer, pp. 21-22 (2001).

conditions set forth by the State Engineer.[12] One of the conditions of approval is that Rio Rancho offset the effects of ground water diversions on the Jemez River above the Zia Supply Canal, by transferring water rights from the Jemez River. Depletions to the Jemez River below the Zia Supply Canal can be offset with the transfer of water rights from the Rio Grande. Offsetting water depletions to the Rio Grande is essential to prevent impairment of existing rights as well as ensuring deliveries to Texas as required under the Rio Grande Compact.

The judgment also set a schedule to which Rio Rancho must adhere in order to continue to increase ground water pumping. The acquisition of water rights and the amount of water pumped are reviewed regularly to ensure compliance with the permit. Rio Rancho must acquire 728 acre-feet of consumptive use water rights every five years. The majority of water rights are required from the Rio Grande, but offsets from the Jemez are also required.

Transfer from Jemez River Basin

The City of Rio Rancho is currently involved in two transfers from the Jemez River Basin, both transferring surface water rights to ground water use.[13] In February, 2003, the City applied for two transfers from San Ysidro, just north of the Pueblo of Zia, one for the diversion of 173.88 acre-feet from Coda and Reba Roberson Revocable Trust UTA/Max Lee Kiehne and Barbara C. Kiehne (Roberson) and the other for 42.49 acre-feet from Thomas Williamson (Williamson).[14] The Pueblo of Zia and the Pueblo of Santa Ana protested both of these transfers. In an official letter to the State Engineer, Attorney David Mielke explained that the Pueblo of Zia protested the transfers because they will not offset the impact of Rio Rancho's ground water pumping on the Pueblo and they will be detrimental to the public welfare of the Pueblo. Also, the Pueblo questions the validity of the water rights. The Pueblo of Santa Ana, which lies at the

[12] Ibid. p.2, 37
[13] Webb, Larry. Personal Communication. City of Rio Rancho Utility Department. 12/22/03.
[14] Mielke, David. Protest of Application by City of Rio Rancho/Coda C. Roberson and Reba D. Roberson. 2003.

confluence of the Jemez River and Rio Grande just north of Rio Rancho, also protested the transfers. The Pueblo believes this is the beginning of a series of applications to transfer water rights and that the cumulative effect of the transfers will impair their federally-reserved water right which is prior and paramount. The Pueblo believes the transfers will be detrimental to their surface water rights, which have a priority of time immemorial.[15]

The State Engineer's position is to permit the transfer under certain conditions, one being that the quantity of the right to be transferred is limited to the historical supply at the place of use, the San Ysidro Ditch.[16] The Office of the State Engineer calculated the historical supply for both of these lands to be 61% of the consumptive use right. Therefore, the recommendation is to allow for the transfer of 106.07 acre feet from Roberson and 25.92 acre feet of water from Williamson.[17] "Historical supply" takes into account the actual amount that has been available for use, considering drought conditions and Pueblo water needs. According to the Office of the State Engineer, permitting the transfer allows a growing municipality to begin acquiring necessary water rights, but in such a manner as to protect other users on the stream system. A hearing on these applications was scheduled, but has been vacated pending discussions among the parties.[18]

[15] Taylor, Lester. Protest of the Pueblo of Santa Ana (2003).
[16] Id. at 12, 14.
[17] Id.
[18] Personal communication, Office of the State Engineer, August 25, 2004.