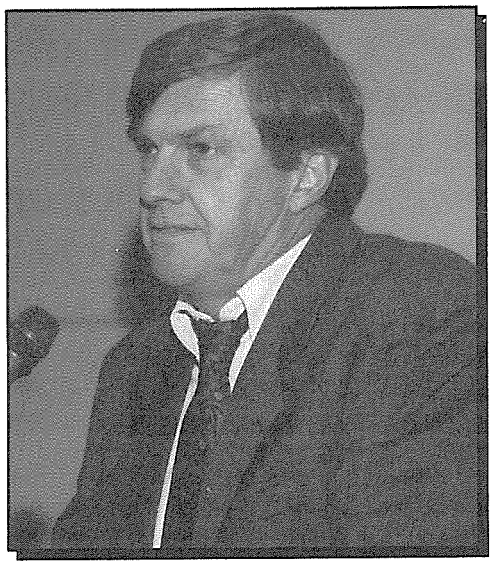
Chuck DuMars is the author of numerous articles on water law and water rights, the co-author of Economic Impact of Alternative Resolutions of New Mexico Pueblo Indian Water Rights, and the principal author of Regional Water Plan Legislation in New Mexico. He is a member of the Western States Water Council, the Board of Trustees of the Rocky Mountain Mineral Law Institute, and the American Bar Association Natural Resources Committee. Chuck also is a professor at the UNM School of Law.



PRACTICAL REALITIES OF CONJUNCTIVE MANAGEMENT: THE MIDDLE RIO GRANDE AS AN EXAMPLE

Charles DuMars
School of Law
University of New Mexico
1117 Stanford NE
Albuquerque, NM 87131

It is a pleasure to be here today to talk about the practical realities of conjunctive management in the Middle Rio Grande region. I am delighted to see all the work being done by the U.S. Geological Survey and others on the very important questions of determining how much water exists and at what rate it dissipates over time. What strikes me is that it is so late in the day to start pondering these very important questions. We have been pumping water and taking measurements for a long time and the fundamental question remains: How do we make scientists and experts accountable for their predictions?

I have given that some thought and then I remembered something from my youth. My father didn't always tell the truth, he sometimes lied to me about what would happen to me if I did something wrong. He said I would go to reform school and at reform school—he was a very creative guy—he said they would put me on a block of ice in a big tank, and while in that tank, if I moved around too much, the ice would melt too fast. I would just have to sit perfectly still and figure out how quickly that block of ice would melt before I would drown. As a result, I didn't do many bad things that he knew of.

The reason that story comes to mind is that I have asked several hydrologist friends the same question, "How confident are you in these predictive models?" Their response, "Well, we are pretty confident in what we are doing here. We will testify to that, particularly the accuracy." But when I ask, "What does all the storativity mean?" they say, "Well, Chuck, you have got to think of some quan-

tity of water, a cubic foot, or a cubic yard, or a cubic meter. It is the amount of water we give up over time out of the space that is between the layers of soil and the gravel and so on." I ask, "Well, can you develop a formula that will be really accurate over a period of time that determines how much water will dissipate from a particular space?" "Yeah, well we can do that if we get good enough data." I respond, "Well, will the formula work for any quantity of water in a particular space?" "Sure." So I've thought, what if we took all the hydrologists, put them on icebergs, let them guess by using their computer models the period of time it would take the icebergs to flow to sea. We'd force them to make that calculation before we set them adrift. My guess is that we would get a great deal of powerful research, a great deal more accuracy in the calculations because the consequence would be drowning. That same kind of heavy motivation is needed in calculating water quantity and I am delighted to see a whole host of things bringing that to fruition. Hopefully, we will get more and more data and come up with better, more accurate estimates. And the hydrologists stepping onto those icebergs will be confident of the accuracy of their prediction.

But where the hydrologists have it easy and where we as lawyers do not have it so easy is that they at least are looking at somewhat of a fixed playing field. The groundwater in storage has been there a while, it is not changing; flow rates are variable and can be calculated over time so that hydrologists have some variables that can be entered into a computer. But what about the practical realities of conjunctive management from a legal standpoint? What does that horizon show us and how is it going to change over the next 25 years? That is my topic today.

The laws of nature are complicated and not easily understood. The law of water is even more so and subject to tremendous political and other forces that are too often unpredictable. In theory one can mine groundwater in a basin and collect surface water to offset the impacts of river pumping by doing one of two things: either find a quantity of surface water rights on the river that is equal to the impacts of the groundwater pumping and retire those surface water rights to maintain equilibrium, or get transbasin diversions. In either case, the river is kept in equilibrium, if that is your goal, and it is the goal of all compacted rivers of New Mexico.

That is the theory. What is the reality? If you accept my major premise, you will conclude that no one would ever put another groundwater well down in Albuquerque, Belen or Los Lunas, or throughout the reach of the Rio Grande, Pecos or the San Juan, unless they could find surface water available to retire or acquire some transbasin water to offset the impact.

That raises the question about whether surface rights are available to retire in this region to offset groundwater pumping so that the full quantities in storage, whatever they are, can be taken. The answer is, there must be. Flying over this area, you see large parcels of irrigated land. Yes, there is surface water in use and there is municipal demand. All you have to do is move the surface water from irrigation use over to municipal use to keep the river in equilibrium. That's it, except for the following concerns.

First of all, a major surface water right holder throughout the valley does not have water rights available for sale to municipalities. Who is this major water right holder? A host of domestic dependent nations so defined in Woorster against Georgia who have the absolute right to maintain and control their water rights on the reservation and who under the Non-Indian Intercourse Act cannot sell their water right to anyone nor would I expect they ever would. So out of the matrix of surface rights that may be retired, ownership transfers from all the pueblos can immediately be eliminated.

Secondly, what about the Middle Rio Grande Conservancy District? Can it or will it sell its water rights to the City of Albuquerque, Belen, Los Lunas and others? It is extremely unlikely. It is not allowed under statute nor is it allowed under the trust relationship or the Board's relationship to its constituents. I think it is virtually inconceivable that an outright sale would take place.

If you separate those rights which can be retired from those which in fact are not in the marketplace, what remains are pre-1907 water rights owned by individuals. Sadly, while there were many at the time the conservancy was formed, determining those rights and getting the equity interest to their owners is extraordinarily difficult. Before there can be conjunctive management of surface and ground-

water, irrespective of how much water one finds in the ground, there must be some mechanism for keeping the river in equilibrium, and simple surface right ownership patterns currently defy that process.

Thirdly, there are compact and treaty obligations associated with surface rights ownership. Under the Rio Grande Compact there are delivery obligations to Elephant Butte, southern New Mexico and Texas. There can be no surface diversion that impairs that obligation. Those compacts set limitations on the ability to take the groundwater because if you take groundwater you affect the surface water too much in violation of the compacts.

A fourth very significant impact involves the federal limitations mandated by the Congress of the United States on the ability to affect stream systems. I just returned from a three-day workshop in which the Association of Western Governors, Western States Water Council, and the Western Association of Game and Fish were in attendance. We spent three days looking at every case study we could find on the Endangered Species Act and how those cases impact the hydrographs in numerous streams throughout the West. The fact is that there are now federal regulatory water rights which preempt compacts and any kind of federal contracts. Once a determination is made that a species on the endangered list needs to be recovered, obligations require a certain quantity of water in the river, a certain hydrograph, and these requirements preempt the ability to take groundwater in storage. It does not matter whether we like it or not, that is the way it is.

Congress was in a terrifically difficult position regarding the Endangered Species Act. It is incredibly difficult to say some species are more important than others. If you protect every single species, the consequences are devastating for existing water users. It is that terrible dilemma now being contemplated as Congress works on the Act's reauthorization. However, it is happening in this river system and it is a fact.

There are other federally mandated concerns, and if they were not federally mandated, they would be mandated by the public will. Virtually every state has concluded that riparian system values exist outside traditional uses of water. In our area, the bosque will demand some quantity of water over certain periods of time to maintain the riverine system. So separate from federal mandates are public welfare mandates. As the public will redefines water's value, it will have a direct impact on the ability to take groundwater in storage, because groundwater cannot be used if the amount taken cannot be offset with water from the stream. If the groundwater well creates an impact on the bosque, or on the silvery minnow, downstream compact obligations, Mexican Treaty obligations, or on senior rights of the Indian tribes, you cannot take the water. That is the practical reality from the legal standpoint of conjunctive management.

Yet other considerations are significant. The Clean Water Act, while originally aimed at maintaining water quality for human populations, was expanded dramatically during the last part of the Bush administration and the current administration. The Act now includes the adoption of fishable and swimmable standards to insure that river systems are restructured to provide fish habitat of the quality that existed prior to point-source diversions, and prior to massive buildups of nonpoint source diversions through drainwater systems. The ability to take groundwater is a direct function of the ability for a municipality to utilize it and reintroduce it into the stream.

Throughout the state of California, increasing stream quality standards have created a rash of golf courses because it is cheaper to take water, treat it, and use it for golf courses and other recreational uses than it is to put it back into the stream. To the degree that groundwater wells are 100 percent consumptive of the stream and not just 50 percent, that is to say, that when the municipality takes it out it then does other things with it not related to the stream, that directly affects all the other capacities to pump water from the ground. The Clean Water Act itself creates a limitation and continues to create further limitations.

Another consideration deals with reinjection. Reinjection is a wonderful conservation technique that allows adherence to water quality standards and places water under pressure down in the aquifer from whence it came. From the standpoint of conjunctive management, the problem with reinjection is that we are very unclear about a number of things, not the least important of which is how much of the water reinjected into the aquifer will

return to a position in the aquifer which flows at the same rate back to the stream. If it does not, have we addressed consumptive management, or is the reinjection, in and of itself, purely a consumptive use out of the stream? Reinjection and conservation have direct implications for the practical ability to preserve and manage the resource once we determine how much of the resource exists.

Another possible solution being contemplated by the cities of Albuquerque and El Paso is surface water treatment plant systems. Everyone agrees that it is a great idea to treat surface water because it is our reliable long-term supply. Dealing directly with surface water supplies has tremendous implications for water quality and impacts downstream areas that previously received recharge from the river. Using surface water embarks on a completely different policy than how we have acted historically. We are unclear of its implications. Is moving to surface water a conservation measure when storing water above the surface exposes it to more evaporation than in God-made reservoirs underground? What is the proper balance between use of groundwater and use of surface water? How do you best coordinate the use of the two sources? Those will be questions for future generations.

Assuming you get through all the hurdles and find water rights in the marketplace to offset the impacts on the stream, and assuming there is a response to the City of Albuquerque's ads asking to buy water rights, there remains the question: How much is it going to cost? First we need an application to the state engineer which will be published in the paper—that doesn't cost much. Then everyone affected—and from the matrix of concerns I have described, the number of people affected is legion—will protest. A hydrologist must be hired to develop a model to predict impacts on the river and others. Protestors also will hire hydrologists. All parties will need consultants to discuss public welfare issues, along with economists to discern whether net benefits exceed costs. To transfer ten acre-feet, I estimate it will probably cost about $100,000. Thus another practical reality of our future scarce water supply is the cost of acquiring alternative sources.

I predict the legal landscape of the future entails not only spending $30-$40 million looking at the region's geohydrology, but also taking a very close look at the quantity of water rights available, their ownership, and the community's long-term policy goals. If problems can be anticipated and diffused, as has been done to some degree in the bosque study, we may avert expensive litigation. If growth is to continue, and everybody seems to feel it will, there needs to be a shift from surface water to groundwater and a method for doing so.

Adjudications of water rights in the courts, as they have traditionally proceeded, are not usually the best way to allocate water and utilize resources. Rather, some new alternative dispute resolutions must be found.

I think people in the upper basin and the lower Rio Grande basin want to see funds committed toward developing a detailed inventory of water use. Not just a book that relies on input and output from different systems like the current book states. It does a good job but it is woefully inadequate solely for financial reasons. We need a detailed inventory of water use and water ownership patterns as best we could determine them. We must take a close look at long-term federal regulatory water rights that exist, and at the rights that exist for maintaining riparian systems under the **principal of the desire and right of the public good.** We need a series of updated records indicating how uses change, how surface and groundwater are impacted by the changes, and how the hydrologic connection between the two are affected. Not only does the groundwater table change, how does the ownership table of water change. How is that changing? These are critical pieces of information needed outside the litigation context. If litigation occurs, everybody starts suing everybody. Lawyers immediately begin trying to get the best hold to prove their client's own beneficial use. More than 35,000 people could try to individually show how much water they use. It's much better to start without litigation through water planning that takes into account a host of things and gets down to a much closer level.

Another suggestion would be to integrate into all hydrologic study teams people who understand the institutional limits of what we are trying to measure. It's helpful to measure things that are institutionally possible. When you do, you move closer toward good conjunctive management, closer in terms of practical reality.