

## WATER CHALLENGES ON THE LOWER RIO GRANDE

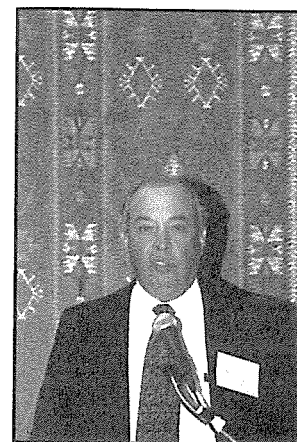
Basin Guidelines and Hydrographic Survey of the Lower Rio Grande



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*of the State Engineer for 16 years. He has been supervising the administration of both surface and underground water rights throughout New Mexico. Calvin has been the Assistant Chief of the Water Rights Division for the last ten years, and in April 1998 was assigned as the District IV Supervisor in Las Cruces. He serves as a Hearing Examiner for the State Engineer and conducts administrative hearings in disputed matters.*

*Max Chavez graduated from Highlands University with a B.A. in management and has completed graduate courses through UNM's Water Resources Program. Max worked for the U.S. Geological Survey for 10 years and as a private consultant for water rights determination. For the past 15 years, Max has worked for the Office of the State Engineer in Santa Fe and currently is project manager of the hydrographic survey of the Lower Rio Grande.*



## Basin Guidelines and Hydrographic Survey of the Lower Rio Grande

### Calvin Chavez Office of the State Engineer

This afternoon I have two things to take care of: the first is to tell you a little bit about what is going on in the Lower Rio Grande and the second is to try to keep you awake after lunch. So I will start by telling you a little bit about the history of the Lower Rio Grande and where we are now.

The Lower Rio Grande Basin was declared by the Office of the State Engineer (OSE) on September 11, 1980 and was extended by the State Engineer on September 18, 1982. Declaration of a basin means that the State Engineer takes administrative jurisdiction of the area, and at that point, anyone proposing to appropriate new waters must file an application with the State Engineer and meet statutory and regulatory requirements. New appropriations in that basin have been filed since declaration of the basin

in 1980, but they have been stalled primarily for the reason that we have not developed administrative criteria and we have lacked an administrative hydrologic model to evaluate those applications. Applications proposing to transfer water rights or change existing uses of water rights have received action by our office, but in some of those actions we have lacked the consistency that is needed in administration. As a result, we have been working on developing criteria to administer the water rights in this area. As of today, we have 1,500 applications to appropriate new groundwater in this basin.

The Lower Rio Grande administrative criteria was released in draft form by the State Engineer in March 1998. Since its release, we have had two public meetings to present that criteria to the water users in the area, and also to receive input and comments from the water users in the area. We believe that by receiving input and comments we can develop better tools for administration of water rights in this area and we desperately need that. Public meetings were held in April and May at New Mexico State University. Written comments also have been filed by the public and continue to come in today. The draft criteria was revised in September and October of this year, and the criteria that I am going to go through today includes those revisions that were contemplated. At this point it is still in draft form, it has not been finalized and we are still receiving comments so if you see anything that you

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want to comment on, please feel free to do so. You can send those written comments to me here in Las Cruces or to the State Engineer in Santa Fe.

I am going to start by showing you the basin map (Figure 1) of the Lower Rio Grande Basin. The Lower Rio Grande Basin starts at Caballo Reservoir and it is the black outline shown on the map. You can see Elephant Butte Reservoir at the top and Caballo Reservoir. The administrative criteria that we have released in draft form covers an area that is referred to as the Mesilla Valley administrative area. The Mesilla Valley administrative area basically starts at Radium Springs, goes south along the Rio Grande to the New Mexico/Texas state line, and includes most of the alluvial fill within the Rio Grande stream system.

As I talk about the administrative criteria, I also am going to refer to an area that is called the High Impact area. Basically the High Impact area is an area within one mile of any surface water source. Surface water source is defined by the criteria as any area within the stream system, the Rio Grande, including laterals, drains, and springs. Those are defined as the surface water sources.

The criteria starts by recognizing that the Rio Grande is a fully allocated stream system. I think you already have heard that this morning several times by several speakers. The criteria also recognizes the system is fully allocated, and as a result of our administrative actions, we cannot affect that surface water source.

We have identified a groundwater model that we will be using for administration purposes. We identify in the criteria that we will be using the Hamilton-Maddock model to estimate river effects on the Rio Grande. In the criteria we also provide for updates or revisions to that model because data continues to come in every day. Studies currently are taking place that may provide additional information that may refine that model and may even propose new models. Those provisions are in the criteria so if new information becomes available we will utilize that new information.

New appropriations that affect surface flows require offsets on the surface water source prior to any diversions. This is applicable to new applications and applicable to the 1,500 pending applications that I mentioned earlier. As we identify the Rio Grande as a fully allocated stream system, and the waters within the aquifer and the stream system are interrelated, we realize that all pumping is going to affect the surface water source. We cannot allow any additional effects to the surface water source so we will require offsets before any diversions. We break that down into two components. If you are within the High Impact area, that is, the area within one mile of

any surface water source, you are required to offset those effects immediately and that is basically the end of it. If you are outside of the High Impact area but within the Mesilla Valley administrative area, you again are required to offset the full effects immediately. But you are given the option to put those waters back to beneficial use, by lease or some other kind of agreement, until they are actually required at the well for offset purposes. This way we continue to utilize and maximize the beneficial uses of the water within the state of New Mexico and do not simply retire everything down here and that is the end of it.

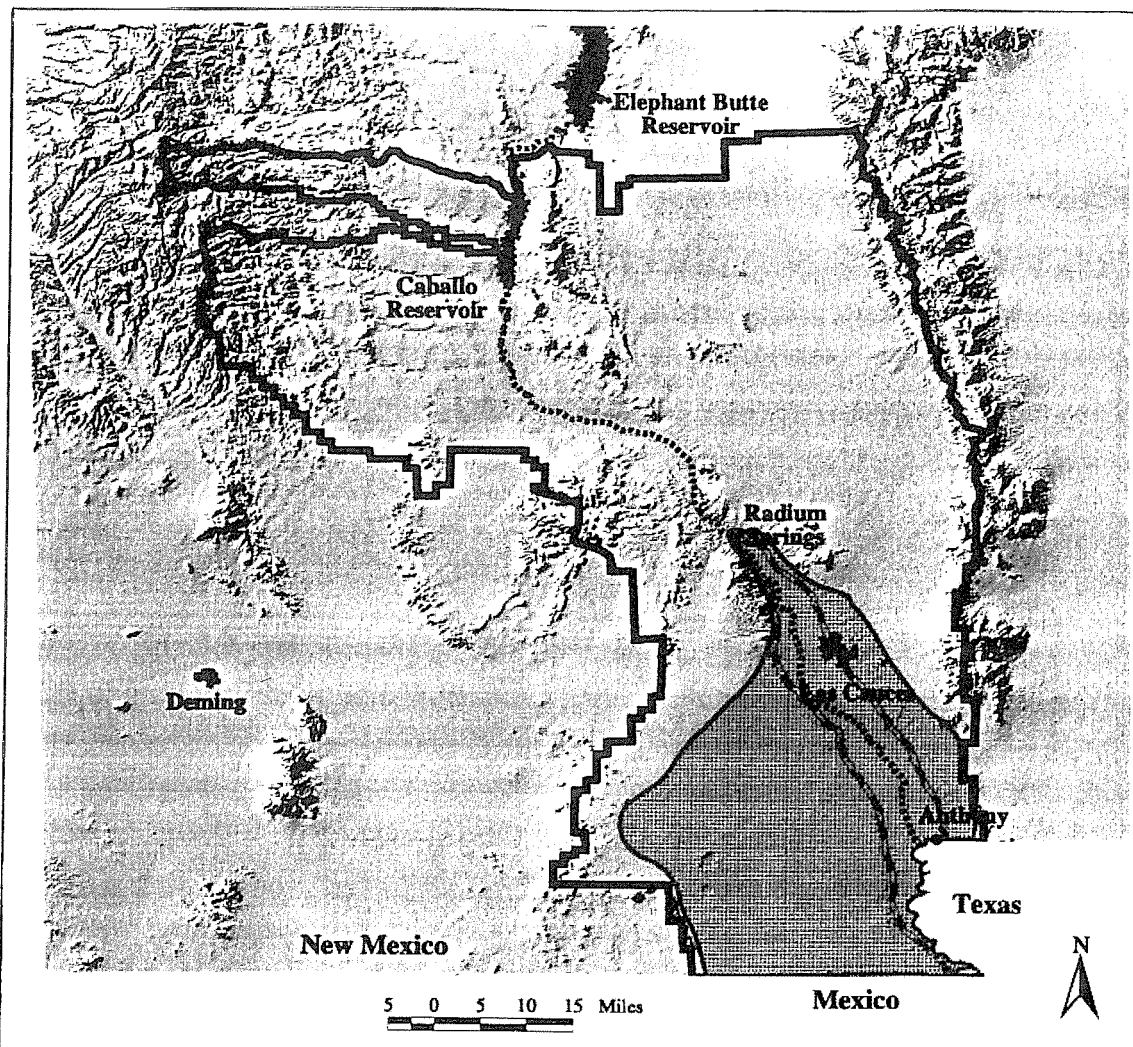
The criteria then applies for applications for those appropriations. If the river effects of 0.1 acre-foot or less occur, we will consider that negligible, and we will not require offsets for that kind of effect because they are simply too small. If offsets cannot be achieved, the application will be denied. By this I mean that if the application proposes to appropriate a huge amount but no application is filed to offset those effects or no offsets can take place, then the appropriation cannot take place. The only option for us is to deny the application.

The criteria makes the statement that the transfer of water rights may not result in an increased effect to the river. In many parts of the state we take a look at that very seriously, and we have to start looking at that very seriously down here as well. If the application proposes, for example, to transfer the water rights to a well that is closer to the river, lots of times when we look and evaluate the river effects, those river effects jump and they jump considerably. That is something that we cannot allow to occur through our administrative criteria. The possibility of conditioning a permit to decrease the actual allowable diversion that may occur at the new well is an option. Alternatively, we can deny that application. Recently we acted on an application that proposed to transfer water rights within Doña Ana County to a well that was closer to the river. Through some hydrology work that included Peter Balleau and our staff, a schedule was developed that was workable. Thus the application was approved, but it also was scheduled and there was a significant cut in the amount of water transferred. If you propose to transfer water rights closer to the river you will be running into that problem.

Allowable drawdowns at the nearby wells of other ownership may not exceed one foot per year. In the initial draft of the criteria we stated that the allowable drawdowns that we would consider acceptable was 2.5 feet or less. We have revised that amount after evaluating the comments we received and we are now looking at one foot per year. Again, we will further evaluate the allowable drawdown.





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Prepared by Hydrology Bureau, 3/98

**Legend**

-  Lower Rio Grande Underground Water Basin
-  Mesilla Valley Administrative Area
-  High Impact Area (HIA)
-  Rio Grande

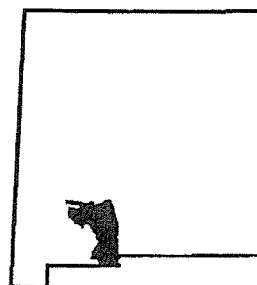


Figure 1. Lower Rio Grande Underground Water Basin

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We are receiving some very useful comments on that specific aspect of the criteria. Again, I invite the audience to give us comments on that issue. Let me go into what this entails. Usually when you pump a well, a new appropriation or a transfer, you create what is commonly referred to by the hydrologists and geologists as a cone of depression. We are looking at the kinds of effects that occur at the nearby wells of other ownership—what kind of drawdowns are occurring as a result of that cone of depression at the nearby well. We have attached a specific number to that allowable drawdown of one foot per year at the nearby well of other ownership. That is something to look at and consider.

The State Engineer's jurisdiction is invoked on Mendenhall claims when an application is filed which in some way alters the claim. You have all heard that there are lots of claims in this basin, and there are. We have stacks and stacks of declarations and for each one of those declarations to be exercised, this basin would basically dry up. We know many of those declarations have not been put to beneficial use. If the declarant files an application proposing to do something different with that original claim or that original water right, the following are some specifics we will be reviewing in terms of taking a position on what kind of water right you actually have.

- We look at the capacity of the well and the source of supply. Some of the claims that we have involve wells that have only a 4-inch casing, but the claim is for 4,000 acre-feet. Realistically, it is impossible to divert 4,000 acre-feet out of a 4-inch well. So those are some of the issues we look at when you file an application to do something different with an existing claim.
- We look at the continuity of beneficial use of water. In New Mexico, beneficial use is what establishes the water right. So we will be taking a look at that.
- We will be reviewing the plan of development, if one exists. There are current cases that refer to the plan of development in trying to perfect your water right, your Mendenhall claim. We also realize that for many of the declarants in this basin, a plan of development does not exist, but that is acceptable.
- We will review the adherence and diligence in following a development plan—again, what type of beneficial use of water is occurring.
- We will look at the period of time since the basin was declared. This basin was declared in 1980. If you start a new use today, you will probably hear from our office because we

probably will take the position that at this point you need an application for the new use.

Municipalities, counties, and public utilities supplying water to cities, counties or universities will be required to file water development plans pursuant to §72-1-9 of the New Mexico state statutes. Currently when you file an application to appropriate water or to transfer existing water rights, the decision the State Engineer has to make is based upon the development plan that entity, which is listed under §72-1-9, has in terms of addressing the length of time it is going to take you to put that water to beneficial use. Thus we will require a development plan for these entities when applications to appropriate or transfer are filed.

Domestic wells will continue to be permitted as approved in §72-12-1. The criteria does not change the statutes, the criteria are just guidelines for the administration of water rights in this basin. As a result, the statute currently provides for anyone who files an application to appropriate water under §72-12-1, they must be granted a permit from the OSE. We will continue to abide by that statute. I know there is some opposition to this, but we believe any change must be brought about by a change in the statute.

Finally, metering will be required for all uses except §72-12-1 permits issued for single household use and livestock use. The only time that our jurisdiction is invoked is when an applicant files an application proposing to change a water right. Thus through the administrative process, the only time we can require a meter on a well is when you invoke our jurisdiction by filing an application. When you file such an application, you will be required to meter that diversion, if you fall under this criteria, and if it is something other than single household use or livestock use. Thank you.

### **Max Chavez Office of the State Engineer**

I will start by repeating what has been said several times today. The Office of the State Engineer (OSE) is involved in two major lawsuits over the ownership and the use of water in the Lower Rio Grande Basin, one in state court and one in federal court. The state lawsuit was filed approximately ten years ago by Elephant Butte Irrigation District. It basically mandates the OSE to adjudicate or to develop a court decree for all the water uses in the Lower Rio Grande.

This leads me into a discussion on the adjudication process. The very first step of an adjudication is the identification and quantification of water rights.

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Basically that is what a hydrographic survey does. In 1996, the State Engineer made a decision to issue a request for proposals (RFP) for the work of a hydrographic survey in this area. The reason we announced an RFP that was our own Hydrographic Survey Bureau was already committed to some 25 adjudications around the state. In 1997, the result of that RFP was the hiring of Parsons Engineering-Science to conduct the hydrographic survey. The two key people from Parsons are here today, Craig Hanson, the project manager, and Randy Johnson, the field-task manager. Randy was formerly with our office so we are very fortunate to have these individuals working for us.

After the contract was signed in May 1997, we immediately flew over the area that included all the major water-use areas along the corridor of the Rio Grande. It also included the Nutt-Hockett Basin, which is outside the Lower Rio Grande. We again flew over the area in July 1997 using Multi-spectral Imagery and by August 1997 we had started to develop the orthotopography as well as the multi-spectral photography to assist in identifying the crop areas. In November 1997, the field work began for the Nutt-Hockett Basin. By April 1998, we had a completed hydrographic survey of the Nutt-Hockett Basin. It has been filed with district court. We are ready to serve those offers to the claimants in the Nutt-Hockett Basin as soon as district court is ready for us to do so.

On the Lower Rio Grande, we are at various stages of development. We have broken down the Lower Rio Grande hydrographic survey into four different sections (Figure 2). The rationale was that we would stagger the offers of judgement so the court would not get 10,000-15,000 offers at one time. The first section is the Rincon Valley, which stretches from Caballo Reservoir down to just above Radium Springs. The second section is what we call the Northern Mesilla which begins at Radium Springs and ends just below Interstate 10 on an east-west line. From there south is the Southern Mesilla. The fourth section is the outlying area where there is very little irrigation but numerous wells. That constitutes a vast area in space but the water use is relatively small.

The development of the Lower Rio Grande hydrographic survey is such that the field crews, with primarily field verification and determination, are on schedule in the Northern Mesilla. Currently, they are working north of Las Cruces in the general area of Doña Ana. The rectified photography or digital orthotopography has progressed all the way down into Southern Mesilla, and almost all of the area that has been flown over is nearing completion.

The final phase of the hydrographic survey is a compilation. Basically what that does is put everything together—the water rights abstracts, the mapping, the field determinations—and everything else. We have approximately five pre-final maps that

stretch all the way down to the village of Hatch. We are on schedule and we hope to have a final Lower Rio Grande hydrographic survey for the Rincon Valley section by the end of the year. We hope to be able to serve offers of judgement in the first section sometime after the first of the year, in January or February. The rest of the offers will be staggered approximately six months apart, so if we serve the Rincon Valley in January or February, in the summer we will have the Northern and Southern Mesilla ready.

On an administrative note, I have begun to establish an Adjudication Support Bureau here in Las Cruces. Our address is 133 Wyatt, Suite 9, which is across the parking lot from the district office, and my phone number is 524-6334.

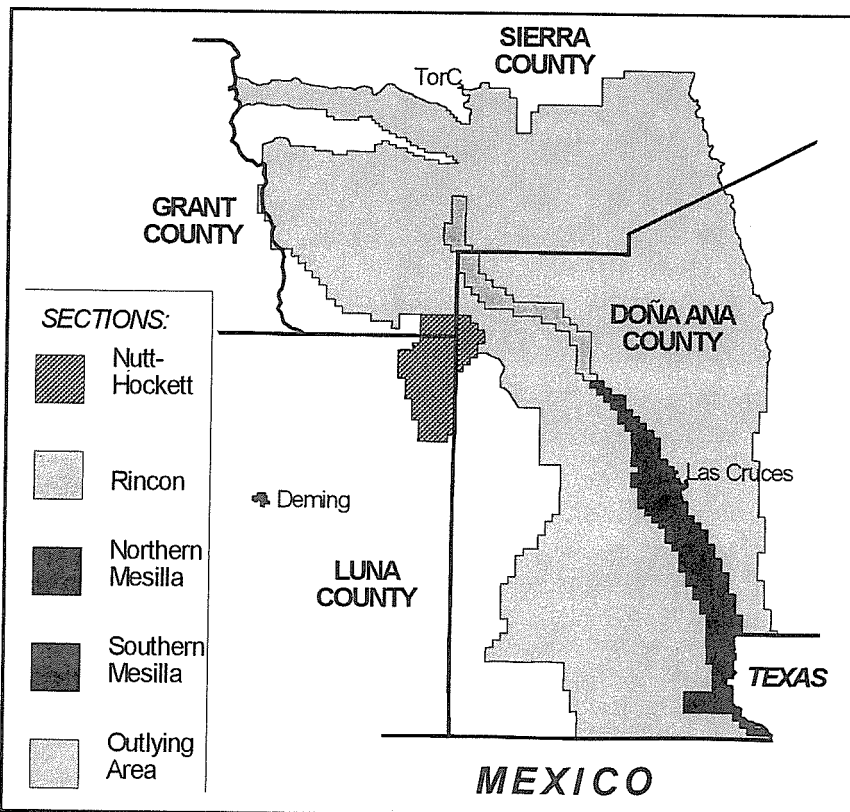


Figure 2. Lower Rio Grande and Nutt-Hockett Basins