

Water trial ends second week

BY RUTH HEIDE

ALAMOSA — The state water rules trial went from geology to math lessons this week as expert witness Willem Schreüder took the stand.

Schreüder is describing in detail the composition of the Rio Grande Decision Support System groundwater computer model and the methods behind the model.

The model is a key part of the state's case for proposed rules governing new withdrawals in the confined aquifer of Division III, the San Luis Valley. Proponents and opponents of the proposed rules are involved in a lengthy trial before District Judge O. John Kuenhold.

Schreüder will remain on the stand when the trial enters its third week on Monday. David Robbins, one of the attorneys presenting the state's case, said on Friday the state has four more witnesses to call after Schreüder. The state has more than a dozen witnesses presenting its case in the first half of a trial which is scheduled for six weeks.

"We are on track," Robbins told Judge Kuenhold. "We should be in sight of the barn by the end of next week."

Protesters to the state's rules will then call their witnesses.

Witness describes model

Taking the witness stand for the second day on Friday, Schreüder explained the process of compiling the computer model, the Rio Grande Decision Support System (RGDSS.) He talked about the methods used, the mathematics involved, and what, how and from where the information was obtained for the model. He described each component of the model and said the model is still being refined as new information and modeling techniques become available.

Schreüder's testimony on Friday morning alone ranged from mass balance error to nonlinear equations.

Schreüder said those compiling the groundwater computer model were fortunate because the San Luis Valley had been studied in significant detail by numerous people over the years so scientific information was readily available to input into the model.

Information for the computer model has come from some of the experts who have testified already during the trial such as hydro-geologist Eric Harmon, scientist Dr. David Cooper and engineer Kirk Thompson.

"In terms of a conceptual model, we have a very very strong foundation from all of these studies that describe for us how the system works," Schreüder said.

The model covers both unconfined and confined aquifers from the water table downward, Schreüder explained.

He described the vertical layers under the Valley's surface which have been identified in five layers with the first encompassing the unconfined or shallow aquifer and the deeper levels lying in the confined aquifer.

Only two irrigation wells penetrate the deepest level, Schreüder said.

The top of the second layer is confined by blue clay which in some points is hundreds of feet thick and on its edges is much thinner.

Schreüder also described the horizontal zones of the Valley from the San Luis Hills to the Rio Grande Fan.

The model includes data from 1950 to 2002, but the period from 1950-1968/69 is considered an initial period.

In 1968 "we went from passive [Rio Grande] Compact administration to active Compact administration," Schreüder said.

Schreüder said the time between 1990 and 1998 is used to run steady state equations because that time period was a fairly stable period in the aquifers where

the inflows and outflows most closely matched.

However, the steady state equations should not be used for future predictions, he said.

"In this particular basin it is inappropriate to consider a steady state for future predictions simply because the system is in a state of flux and in particular using the steady state ... from 1990-1998 is inappropriate to use because those conditions don't appear to be very likely to occur in the future."

A transient simulation more accurately reflects and predicts changes and stresses in the system, Schreüder said.

When asked a similar question about "knob twisting" which was asked expert witness James Slattery earlier in the week, Schreüder said "You can't just spin the knobs until you get the answers you want. You have to make sure the settings on those knobs tie with reality."