

Water experts testify

BY RUTH HEIDE



Assistant Attorney General Peter Ampe, left, and Rio Grande Water Conservation District Attorney David Robbins, right, visit with state's witness Steven Vandiver during a break from the water trial in Alamosa.

Below right, Allan Hale, left, and Kevin Kinnear, attorneys for protesters to the state water rules, take a break from the trial, which is in its second week in Alamosa.



ALAMOSA — The witness list is progressing more quickly during the second week of a scheduled six-week water trial in Alamosa. While proponents of proposed state water rules made it through three witnesses during the first week of the trial, they have already called an additional five witnesses so far this week and are expected to bring a sixth to the stand this morning.

In addition, the state called back to the stand its first witness Steven Vandiver, retired Division Engineer for the Colorado Division of Water Resources Division III and current Rio Grande Water Conservation District manager.

In addition to Vandiver this week witnesses have included Kirk Thompson with Agro Engineering, farmers Roy Helms and Ray Wright, scientist Dr. David Cooper and engineer James Slattery. Expected to begin testimony today is Willem Schreüder, whose expertise was key in developing the Rio Grande Decision Support System, a groundwater computer model.

ET not a sci-fi movie

One of the provisions in the state rules provides protection for non-irrigated native vegetation, a point of contention between proponents and protesters. Several times in the last week objectors' attorneys have questioned witnesses about the Closed Basin Project which redirects water from native plants into the Rio Grande to help meet Rio Grande Compact obligations.

Scientist Dr. David Cooper testified this week the Closed Basin Project has lowered the water table in the area it impacts by 1.5-1.6 meters. Cooper said if the water table was lowered to depths greater than the 1.5 meters associated with the Closed Basin Project, such as 3 meters for example, changes could occur more rapidly and exponentially.

He said there are many wetlands in the Valley that have not been impacted by the Closed Basin Project. He said those areas are very sensitive to the lowering of the water table, and as a scientist he would hate to see additional lowering of the water table in those areas.

Cooper testified about studies he had conducted on evapo-transpiration (ET) on native plants. He found some roots as deep as 17 feet, but the bulk of the roots were within 1.5 feet of the surface. "I am not sure if lowering the water table rapidly by several meters would not kill some of those plants," he said.

Aquifers are
in overdraft

Roy Helms, president of the Rio Grande Water Users Association, said the association is supporting the state's rules because the water users believe from what they have seen themselves and from listening to engineers like Allen Davey "we are actually hurting the aquifer by over pumping."

Ray Wright, president of the Rio Grande Water Conservation District Board, shared personal observations about wells which used to flow and no longer do. For example, he said stock wells on property owned by his sister in the Sargent area dried up in 2002 and have not yet returned to a flowing condition.

He said 2002 affected his water supply as well, and in subsequent years he substantially cut back acreage.

Expert James Slattery, who testified on Wednesday, said "Currently the aquifers in the San Luis Valley are in an overdraft situation. We are taking out more from the aquifers than we are putting in which is causing the groundwater levels to decline. If they continue to take out more than they are putting in, we are going to continue to see the groundwater level decline."

He said to make the aquifers sustainable "It appears we either have to have a tremendous amount of more recharge than we are having or a reduction in the amount of pumping in the Valley."

Model explained

Slattery was qualified as an expert in groundwater modeling, water resources engineering, hydrology and geo-hydrology. He helped calibrate the computer groundwater model and served on a peer review committee for the model.

He described the groundwater model as a set of mathematical equations used to approximate a physical system, in this case the Valley. He said different factors affect the equation, and those creating and fine tuning the model tried to account for all of the factors which affect groundwater in the Valley.

He said there are areas of the model which did not calibrate well and need continued work. He said engineers have sometimes been accused of "knob twisting" to manipulate calibrations to get the results they want. "We did not do any of this knob twisting in the Rio Grande Decision Support System. As a result you will have areas of poor calibration."

Kirk Thompson, an engineer with Agro Engineering, was qualified as an expert in agricultural engineering including areas such as crop evapo-transpiration and remote sensing.

Thompson and Agro crews contributed information to the groundwater model and helped calibrate the model.

For example, Agro compared the model's predictions of crop evapo-transpiration with Agro's ET results. Thompson said he believed the model would provide an accurate estimate of crop evapo-transpiration.

Thompson described in detail the methods Agro uses to collect its data and explained the technology used to create maps showing the irrigated areas of the Valley.

The task ultimately involved digitizing 10,260 irrigated parcels of land. Agro identified 625,000 acres of irrigated land in the Valley, Thompson said.

The state is expected to wrap up its side sometime next week. Those protesting the rules will then call their witnesses. The trial is a non-juried event which will be decided by presiding District Judge O. John Kuenhold.