

1-1-2008

## Prairie Waters: Aurora, Colorado's Water Recycling Plant

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### Custom Citation

Steven Earl, Conference Report, *Prairie Waters: Aurora, Colorado's Water Recycling Plant*, 11 U. Denv. Water L. Rev. 406 (2008).

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flow purposes. Eisel is supportive of alternatives to buy and dry to allow for the change of agricultural water rights to instream flow purposes on a permanent basis. The Trust is hesitant, however, to lease water for only short term periods.

Nichols then took the floor to discuss the specifics of the Super Ditch Company. Nichols began by framing the problems of permanent water transfers, or buy and dry, of water from agricultural irrigation to municipalities: the transfer is a one-time deal where municipalities buy shares in a ditch company, often far from the actual municipality, and the water is permanently removed from irrigation use by the ditch company. The irrigator and the region then can suffer from the limited or lost agricultural productivity resulting from the water transfer. Mr. Nichols favors the Super Ditch Company as an alternative to this historic problem.

According to Nichols, the Super Ditch Company would consist of participating ditch company shareholders and would grant shares of stock to persons offering up their unused water with long-term leases of the unused water to others. This program utilizes rotational land fallowing, where irrigators fallow a portion of their land and then lease the corresponding water that they save, providing an alternative to outright purchase. Nichols is optimistic that this program ultimately will create a new cash crop in the Arkansas Basin—water.

Nichols elaborated that the Super Ditch Company is a “win-win” for municipalities and ditch companies. Specifically, the rotational land fallowing program “will level the playing field” by not allowing municipalities to prey on economically distressed ditch companies. It will also protect the long-term viability of agriculture interests in the Lower Arkansas Valley. Municipalities will benefit by the cost-effective program because they will receive water at competitive prices, even in dry years. Nichols concluded that program’s success depends upon the cooperation among all ditch companies and shareholders, as well as municipalities coming to terms with not having total control of the water rights.

*Christopher Hudson*

#### PRAIRIE WATERS: AURORA, COLORADO’S WATER RECYCLING PLANT

This session involved municipal water reuse and its associated environmental effects. The panelists for this session included: Peter D. Binney, Director of the City of Aurora’s Water Department, Aurora, Colorado; Bart Miller, Water Program Director for Western Resource Advocates, Boulder, Colorado; and Steven O. Sims of Brownstein, Hyatt, Farber & Schreck, Denver, Colorado.

Peter Binney gave the first presentation, discussing Aurora’s Prairie Waters Project. He began with the history of Aurora’s water supply and explained that Aurora requires more water because of recent area droughts, an exhaustion of the local water supplies, and Aurora’s unprecedented growth of five thousand people per year, which requires

an additional sixty-thousand acre feet of firm water yield by 2050, or a doubling of its current rate. Aurora's water supply is vulnerable because a large portion comes from a single source, Strontia Springs, and because the reserve margins are below desired levels.

After discussing the potential for less regional water based on climate change, and the history of long cyclic droughts in the region, Mr. Binney spoke of Aurora's approach to water management. Aurora uses an integrated water supply planning method, which looks first at demand management, then at interruptible supply, and finally at firm supply. Mr. Binney explained how the high potential for supply interruption, and the limited options for increasing future supply with new sources, made reclamation Aurora's best option. Water reclamation forms the basis of the Aurora Prairie Waters Project.

Mr. Binney then described what steps are necessary to implement the Prairie Waters Project. The steps include: consultation with multiple federal and state agencies; various intergovernmental agreements; and over five hundred local land use permits. Aurora has scheduled this complex project for completion in 2010, at a cost of approximately \$754 million dollars, which local water sales and connection fees will finance. Mr. Binney also briefly described the advanced multi-stage purification process involved in municipal water reclamation and the purification processes that the Prairie Waters Project will use.

Bart Miller spoke about the conservation community's response to the recent droughts and new water-development processes. He gave an overview of a collaborative report called *Facing Our Future* which offered numerous water management suggestions. The report's main recommendations included increasing water conservation, using existing supplies more efficiently, and protecting or restoring waterways. Mr. Miller explained that effective demand-side management techniques include indoor water reductions using state-of-the-art technologies, and outdoor water reductions through landscape changes. Effective supply-side management techniques include reduction of water losses, water reuse, aquifer storage, and water transfers. Water reuse, Mr. Miller explained, is one of the most effective means for increasing water supplies, and is why the Prairie Waters Project will help Aurora to meet this goal.

Although supportive of the project, Mr. Miller had several suggestions for its implementation. He encouraged Aurora to adopt an increasing block rate structure, which by charging a higher rate for increased consumption most effectively encourages efficient water use. Another suggestion for Aurora's rate structure was a low monthly service charge, so that users are more aware of their consumption. He also encouraged Aurora to set savings goals to reduce per-capita demand. In addition, Mr. Miller had suggestions relating to water quality and quantity impacts. He encouraged additional treatment steps to remove the residuals remaining after standard water treatment, and

also encouraged Aurora to prepare a recovery program for endangered wildlife. Mr. Miller also stressed the link between renewable energy and water savings, and stated that Aurora would further increase its water savings by using electricity from renewables for the new treatment plant and for other electricity needs.

Steven Sims spoke about the legal underpinnings of reuse technologies. Mr. Sims first stated that water reuse has both a green component and an economic component because, in addition to saving water, a municipality saves money by eliminating additional water right acquisitions. Since the Denver Metro area treats around 130 million gallons of wastewater a day, Mr. Sims concluded that the area would benefit from an aquifer recharge and recovery system ("ARR"). ARR systems provide the additional water treatment required for large scale reuse, as well as temporary underground water storage. This new technique poses a challenge for Colorado water law because if diverted water is not used within seventy-two hours, a storage right must be obtained. This is a challenge for ARR because Denver Metro must temporarily store underground before reuse. Despite this challenge, Mr. Sims was optimistic that Colorado water law can accommodate ARR; for example, Colorado Revised Statute section 37-92-102(2), which specifies standards for underground water storage.

Mr. Sims then spoke about which classifications of water are eligible for reuse. Trans-basin and deep-well waters are suitable, but transferred water, which can only be used up to historical consumption levels, is not suitable. One issue that still needs addressing, explained Mr. Sims, is whether Senate Bill 77-481, which requires artificial injection for underground storage, is applicable to ARR. This is important because the distinction under Senate Bill 77-481 between an aquifer and underground storage relies primarily on whether the water flowed naturally into, or was artificially injected into, the underground reservoir. Mr. Sims stated the "definitive case" dealing with the difference between recharge and underground storage is *Board of County Commissioners v. Park County Sportsmen's Ranch*. In that case, the Colorado Supreme Court determined that the legislature, in Colorado Revised Statute section 37-92-103(10.5), contemplated a two-step process for artificial recharge of an aquifer. First, the applicant must control the water and then it must artificially inject it into the aquifer pursuant to a decreed water right. The Court also noted that the applicant for a storage right bears the burden of proving that the aquifer can accommodate the recharged water without injury to decreed senior water rights. The elements of proving this are in footnote 19 of the case, and Mr. Sims summarized them as follows: most of the elements involved avoiding injury to others, but other elements involved the applicant's ability to capture water and store it, the adequacy of the applicant's explanation of the water retrieval process, and the accuracy of the applicant's accounting of extracted and stored water.

Mr. Sims also briefly described other laws applicable to the use of ARR which included: the State Engineer Guidelines for Lining Gravel Pits, the EPA Underground Injection Control Program found in Part C of the Safe Drinking Water Act, and other Denver Basin recharge issues originating from Colorado statute section 37-90-137(9)(d), which deals with well permitting and locating requirements.

All three speakers discussed the importance of water reuse technologies in maintaining municipal water supplies and how Colorado's variable water supplies make water reuse a great strategy for municipalities like Aurora and Denver. The overall message from this panel is that, although many of these technologies are new, Colorado water law can accommodate them. Thus, Colorado municipalities should increasingly consider water reuse as a viable water management strategy.

*Steven Earl*

#### WATER COURT COMMITTEE: DESIGNED TO EVALUATE THE FUNCTIONS OF THE WATER COURT

Justice Hobbs opened his report on the Water Court Committee with a poem about rust on the hinges of a tackle box. He wondered aloud if there is rust on the hinges of the water law that resulted from the 1969 "Adjudication Act." He noted that three quarters of Colorado's water basins are over appropriated. Also, Colorado is only able to use one third of its resources because the other two thirds must go to the out-of-basin states. The Adjudication Act, known officially as the "Water Right and Determination and Administration Act of 1969," provided that water judges would determine both water rights and conditional water rights, approve plans for augmentation, and eventually take over jurisdiction of water adjudications pending at the time of the passage of the Act. The Act also gave responsibility for administration and distribution of water to the state or division engineer and provided that the water judge of the involved division should issue any injunction to enforce orders of the state or division engineer. Justice Hobbs noted that the government has known since the 1890s that both the Platte and the Arkansas River systems are over appropriated.

Justice Hobbs explained the legislature passed the Adjudication Act partially because judicial districts do follow water boundaries, and a system of water courts, water judges, and division engineers to adjudicate and change water rights was clearly necessary. Justice Hobbs mentioned there were two major bills in 1969, a Senate Bill and a House Bill. Attorneys authored the Senate Bill, while Felix Sparks, director of the Water Conservation Board, drafted the House bill. The Senate Bill proposed that the initially the division engineer would make a determination of all water rights applications. Under this bill, the division engineer would become responsible for ruling and making a determination on the application on a case-by-case basis. The water courts would then review this ruling. The bill did not introduce a standard of