

WATER Tight

Colorado golf
courses face
complex rules
and regulations
dating back many
years when it
comes to
irrigation
privileges



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For nearly 150 years, the arid and semi-arid states that make up the mountain region of the United States have thrived and died on one thing — *water*.

Since the Colorado gold rush of 1859, water has been the lifeblood of all existence in an area of the country that can see average rainfall anywhere from 9 inches to 15 inches a year. Out there, as the saying goes, “Whiskey is for drinking, water is for fighting.”

Since then water has proved to be the linchpin in deciding where any sort of development from towns to farms to industry can survive. An intricate set of rules and regulations dating back to the gold rush days determines how much water an entity receives — 80 percent of which comes from the snow pack in the nearby Rocky Mountains and 20 percent from rainfall.

But that hasn't stopped development on both sides of the

Rockies, known as the western slope and the eastern slope. To make matters worse, the west has the water — namely in the Colorado River — and the east has the population that's centered by the city of Denver. The result is that obtaining water in the Denver area can reach astronomical costs. In one suburb the cost for a new home to attach to the municipal water system is more than \$24,000. The price to drill a residential well is between \$10,000 and \$20,000.

"Water is gold and king out here," said Mark Krick, superintendent at The Homestead in Edgewater, Colo.

The biggest problem faced by Colorado and other states in similar situations is that demand exceeds supply in many areas and has as far back as the 1850s. In Colorado a series of often times confounding laws and regulations has been implemented to deal with the partitioning out of water, all overseen by the Colorado Division of Water Resources (CDWR).

Understanding the guidelines is a daunting task. One paper, *Water 101*, put out by the CDWR to explain the basics to residents, is 28 pages. Another pamphlet that defines well permits and water rights is 20 pages.

"It's a different game out here," Krick says.

According to Dick Wolf, an assistant engineer with the CDWR, the water rights stem from the Doctrine of Prior Appropriation, which was made into law in 1876 and is often known by the term, "First in Time, First in Right."

According to the doctrine, whatever landowner first established rights to water, often dating back to the 1850s, subsequent owners of that land inherit and maintain those rights. All subsequent water users have access to the water in the order that their water rights were established, known as senior rights and junior rights.

Not only is the order established but also the amount that can be drawn by each user. That amount is not just calculated by the

amount drawn from the water source, such as a well, river or surface runoff, but also by the amount of water that subsequently makes its way back to the water supply.

In other words, if a golf course developer purchases land from a farmer on which he used 100 million gallons a year and the state calculated 50 percent returned to the water supply, the golf course can't exceed usage or fall short on the amount of water returned to the aquifer or surface areas such as streams or lakes. Even if water is available to a landowner through a well, river or surface runoff, he may not have access to it if other users with more seniority are affected by his drawing off the exiting supply.

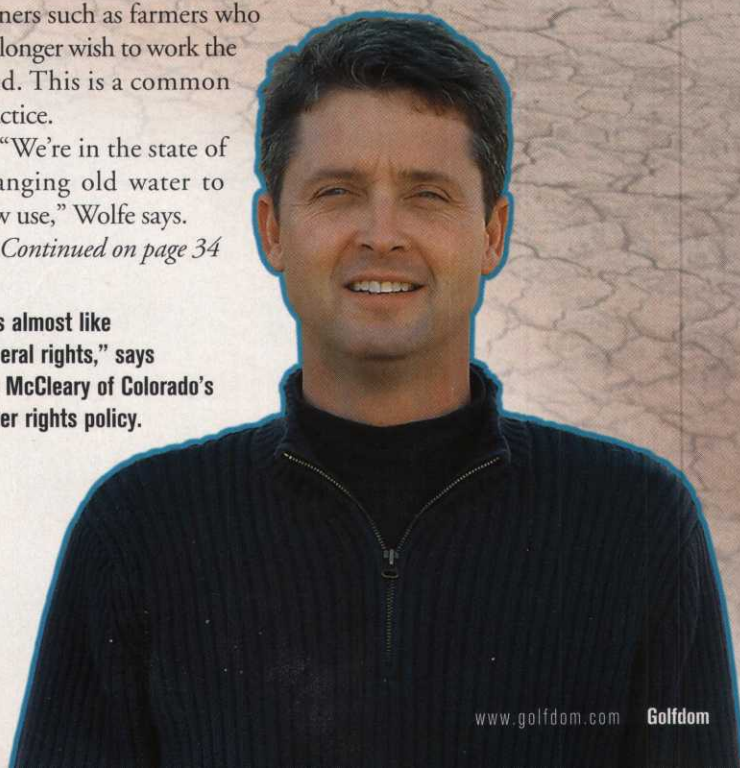
"It's almost like mineral rights," says Joe McCleary, certified superintendent of Saddle Rock Golf Course, owned by the city of Aurora and located just east of Denver.

There is always the option of buying other water rights to increase water availability. Since the rights are transferable, a golf course developer can purchase them, including the seniority in obtaining water, from owners such as farmers who no longer wish to work the land. This is a common practice.

"We're in the state of changing old water to new use," Wolfe says.

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"It's almost like mineral rights," says Joe McCleary of Colorado's water rights policy.



ONE SUPERINTENDENT'S FLIGHT

Scott Phelps could be the poster boy for the confusing and often times frustrating world of Colorado water regulations in his tenure as certified superintendent of two courses in the town of Littleton, located in the foothills of the Rocky Mountains.

In 2002, while at Deer Creek Village Golf Club, Phelps came face to face with a serious drought. A stream running through the property was the course's major source of water but not a guarantee. A water user some 20 miles downstream had a higher priority or more senior water rights. That meant Phelps could only watch as water that he was not allowed to use flowed through the course.

According to regulations established by the Colorado Division of Water Resources, if it was determined the water would evaporate or seep into the stream banks before reaching the other user, Phelps' course could take the water through what is known as a "futile call." But the 2002 drought was so severe and

water flow from the minimal snow pack in the Rockies was so low that there was not even enough for Phelps' course from which to draw.

"We knew by May we would not have enough water," he said. By mid summer the creek was dry.

Phelps stopped irrigating fairways and roughs to make sure he had enough water for tees and greens. He expected heavy rains would fill up his on-course ponds, but they never came that year and much of his course burned out.

Phelps is now at Arrowhead Golf Club, also in Littleton. Arrowhead has a different setup from Deer Creek — it purchases some of its water from the municipality of Aurora, about 20 miles away, and some from a mine in the Rockies. The lease with Aurora runs through 2022, but Arrowhead has been on a water restriction implemented by the municipality since the drought of 2002. Because of that, the course pur-

chases 300-acre feet (an acre foot is roughly 326,000 gallons) from the mine. That water is pumped not to the golf course but to a reservoir owned by Aurora.

Aurora then supplies Arrowhead with the same amount of water from another reservoir it owns, but that water is much closer to the course. The exchange, though, is not for the 300 acre feet. The state has determined that 35 acre feet is lost to evaporation during the 100-mile trip down the mountain so Arrowhead ends up with 265 acre feet a year.

This year Phelps hopes water restrictions might be lifted and he and everyone else can breath a sigh of relief.

— Anthony Pioppi

Scott Phelps, certified superintendent of Arrowhead Golf Club, knows all about Colorado water regulations.



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Water is moved from the mountains to users through an intricate series of ditches, canals, pipes and, in the case of getting water from the Western Slope to the Eastern Slope, tunnels cut through mountains.

Until water gets to the users, the state keeps an eye on flow to prevent theft by using satellite monitors overseen by water commissioners. Once the water makes its way onto private land where a number of purchasers can use it for myriad reasons, persons known as ditch riders, who are hired by the private entities, monitor the water consumption.

"It's a crude system but effective," Krick says.

Although it seems like a daunting task to keep an eye on all of that water, Wolfe says the best policing is often performed by neighbors who report unscrupulous users.

One way for courses to get around the water issue is to use reclaimed water. But demand for effluent is so high that there

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is only enough of it in Aurora to handle the needs of six of the eight courses owned by the city, McCleary says.

Water issues on the eastern slope (where 80 percent of the population lives) have residents of the western slope (where 80 percent of the snow pack is found) worried as more and more water is diverted to the metro Denver area and away from their needs.

Andy Nikkari, who has been superintendent of The Golf Club at Redlands Mesa in Grand Junction on the western slope since 2001, says plenty of water has been available every year, even in the drought of 2003, when he received only three-tenths of an inch of rain over 3.5 months. However, there is concern that could change as the population in Denver area continues to rise dramatically.

Even though water has always been plentiful, Nikkari says he has reduced water usage every year.

"We do our best to not over-water. We make adjustments every day," he says. "You don't need a weather station. It's hot and dry every day."

For Nikkari and others in the area, that means temperatures more than 100 degrees Fahrenheit, humidity at 5 percent or less and less than 9 inches of rain annually.

The water for his course comes in through a canal owned by the city of Grand Junction. He pays a flat monthly fee for the service.

Colorado and much of the mountain region is in the midst of what has been

termed a "multi-year, chronic regional drought." In 2002 and 2003, sections on the eastern slope were hit with severe water restrictions that in many cases are still in effect. Some homeowners who built during that time are still forbidden from landscaping their property.

Not surprisingly, golf came under intense scrutiny for its water use. As a

result the Rocky Mountain Golf Course Superintendents Association, along with The Colorado Golf Association, Colorado Women's Golf Association, Colorado Chapter of the Golf Course Owners Association and the Colorado Section PGA, sponsored a study by the Colorado State University Department of Agricultural and Resource Economics titled, "The Economic Contribution of Golf Industry: Environmental Aspects of Golf in Colorado." One of the most telling results

was the fact that golf courses use less than one-third of 1 percent of all water used in Colorado.

The study also determined that nearly half of all golf course water used in 2000 was recycled and that the average square foot of maintained turf on a golf course uses 15 gallons of water a year where the average square foot of a bluegrass lawn requires 18 gallons a year.

The only good result of the drought might just be the public's awareness of how efficiently golf courses use water.

"The drought really put the magnifying glass on the green industry," McCleary says. "It really forced us to prove our mettle." ■



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