

# Water Update

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It has been five years since Iron County opted out of the \$1.4 billion Lake Powell Pipeline project proposed to bring an estimated 86,000-acre feet of water from the Colorado River, through Kane County to Sand Hollow Reservoir in Washington County.

Although opting out created some concern at the time for Iron County officials, with some creative thinking those worries are becoming a distant memory.

## The current situation

The Mormon settlers of Cedar City chose the location of the town due to the proximity of Coal Creek; the town's only above-ground water source. The Cedar Valley is a closed basin, meaning Coal Creek ends west of Cedar City at Quichapa Lake where the water seeps into the ground.

Ten years ago, the Central Iron County Water Conservancy District filed for water rights in the Pine and Wah Wah Valleys of Beaver County and propose to build a pipeline of their own to bring water to Iron County.

Currently, the two sources of water being used in the Cedar Valley come from Coal Creek or by pumping water from an underground aquifer. But with Cedar City's population jumping from 13,443 in 1990 to more than 30,000 today, the town is using more underground water than is being recharged, or put back into the ground.

"We have been mining this aquifer since the 1930s, and lately we have been mining about 8,000-acre feet of water more than we are recharging annually," CICWCD Executive Director Paul Monroe said.

One acre-foot of water is the equivalent of a football field dug one foot deep, and about 80 percent of water in Iron County is used by agriculture, Monroe noted.



*Water winds its way down Coal Creek to Quichapa Lake on March 30, 2017. (Photo: Haven Scott / The Spectrum & Daily News)*

The good part about Cedar Valley being in a closed basin is there is nobody downstream that depends on Coal Creek's water, the bad part is the alkaline, silt and clay Quichapa is famous for are not good for recharging the aquifer.

In a story about Iron County history published in the Utah Historical Quarterly in 1928, Quichapa is said to be a Paiute word meaning "dung water."

"The bed of Quichapa Lake is hundreds of thousands of years of Cedar Breaks that made its way down Coal Creek," Monroe said. "Once the water makes it there it is useless. It won't recharge the aquifer and water quality is so bad that it can't be used for anything else."

The decision was made to take away the water that has made Quichapa a "lake." It is also known as a dry lake for the times during the year when there is no water in it. To do that they borrowed an idea from Cedar City Engineer Kit Wareham.

## **Airport pits**

More than a decade ago, Wareham was out on a December stroll near the airport watching Coal Creek's water travel downstream to its final resting place.

"It was winter when agriculture is not using any of the water, and I was watching all this water go downstream to Quichapa," he said.

Infrastructure to divert the water to channels in case of flooding already existed and there were nearly seven acres of the basin being unused to channel water into, so the solution was “simple,” Wareham said.

“We just installed two head gates to divert the water into two pits out near the airport,” he said. “The water percolates into the aquifer and tests have shown the water quality is very good.”

During the winter months for the last 11 years, water channeled back into the aquifer that was previously useless by the time it reached Quichapa has recharged the aquifers by an average of 1,800 to 2,200-acre feet of water annually.

“The United States Geological Survey estimates the aquifer levels in that area have risen 20 to 30 feet in the last decade,” Wareham said.

The city is considering plans to drill a city well in the area due to the success of the recharge. If a well is put in at the location, the city would save money by not having to pump water from wells outside of the city.

## Western Rock pit

The third phase of the Coal Creek Flood Mitigation project is about two weeks from completion. The creek was widened in spots and new flood paths created that made it possible for several areas on the northwest side of town to be taken out of the flood zone.

During the flood mitigation projects, members at CICWCD discussed the possibility of using some of the water that was being diverted due to construction to recharge other pits near town. Western Rock ultimately offered use of a gravel pit they own but are not currently using.



*CICWCD Director Paul Monroe inspects a pipeline that has diverted 1,300-acre feet of water into aquifer during a flood mitigation project on March 30, 2017. (Photo: Haven Scott / The Spectrum & Daily News)*

The idea was proposed in February. One week later Cedar City and CICWCD crews were digging ditches. For the last few weeks, water has been recharging the aquifer northeast of the airport.

Cedar City chipped in \$5,000 and more than 600 feet of unused pipe that was taking up space at the airport. CICWCD chipped in another \$5,000 and the return came pouring in once the floodgate was opened.

Cedar City councilman Paul Cozzens, who also serves on the board at CICWCD, said it would cost an estimated \$277 per acre-foot to bring water from the Pine and Wah Wah Valleys to the Cedar Valley.

“So, if we put 1,500-acre feet into the aquifer with this project, that is almost a half million dollars we saved the taxpayers,” Cozzens said. “We have already put 1,300-acre feet in there.”

## **The last of Quichapa**

Despite all the diversion, there was still good water making its way to Quichapa Lake. CICWCD employees visited a pipeline that carries 2.6 million acre-feet of water annually from Lake Havasu to Phoenix and came home with some new ideas.

“Our goal is to put every drop of water that comes out of the canyon that the agriculture does not use back into the aquifer,” Cozzens said.

Monroe said the county has good wells near Quichapa, some within very short distances from the contaminated dry lake. With the help of \$100,000 grant, Quichapa may soon see its last drink from Coal Creek.



*A floodgate being constructed by Quichapa Lake is shown on March 30, 2017. The diversion will route the water into the underground aquifer. (Photo: Haven Scott / For The Spectrum & Daily News)*

The floodgate currently being installed will divert Coal Creek's water under state Route 56 and through a "lazy river," where the sediment will filter out and clean water will recharge the aquifer north of the dry lake.

"The teamwork that was put into this project is unbelievable," Monroe said of the Cedar City, Iron County and CICWCD crews, the Bureau of Land Management and four landowners in the area.

A similar project, dubbed the Enoch Graben, has also been recharging aquifers near Enoch over the winter.

"This was really easy too," Monroe said. "There was an old spring that was there from an old irrigation ditch, and we recharged that aquifer pretty much all winter. Again, most of the infrastructure was already there for the project."

## **The future**

A future without the Lake Powell Pipeline seems less scary with these and other projects going on, but with the current growth Iron County is experiencing, officials realize aquifer recharge may not be enough. Monroe said bringing water from the Pine and Wah Wah Valleys might come soon.

Although the rights to the water in Beaver County were granted to CICWCD in 2014, Beaver County has since contested those rights.

“We approved a settlement agreement, which is subject to the other party’s approval in our last board meeting,” Monroe said. “We are about as close to a done deal as you can get.”

If water is brought into the Cedar Valley from the “west desert,” it would be via a pipeline that would run through the town of Lund.

“The test wells we have drilled in the west desert are very promising,” Monroe said. “The water is as good or better than many of the wells here in the Cedar Valley. They will be very good water producing wells in the future.”

Cozzens said opting into the Lake Powell Pipeline would have “bankrupted” the county. Monroe agreed but noted that at the time opting out was a very difficult decision to make. With the future of the Beaver County water uncertain and the Cedar Valley using more water than was being recharged into the aquifer, the decision was not taken lightly.

“At the time, it was a very tough decision for the board to make,” Monroe said. “But at the same time, it was not economically feasible. We think that we can recharge and conserve enough water to get us within equilibrium of what we use. But if we continue to grow we will need to import water as well.”



*During a flood mitigation project, water is diverted from Coal Creek into the underground aquifer on March 30, 2017. (Photo: Haven Scott / The Spectrum & Daily News)*

Cozzens said officials from the Utah Division of Water Rights recently toured the Iron County flood mitigation and recharge projects.

“The state engineer toured the projects recently and he was elated,” he said.

UDWR Deputy Director Boyd Clayton said that the aquifer recharge projects only make his job easier. If a community is experiencing extreme water shortage, UDWR is the department that can possibly set water restriction and appropriate or distribute water to more critical areas.

Though Iron County is not the only county doing aquifer recharge projects in Utah, they are “not plentiful” either, Clayton said.

“We are always encouraged to see those organizations who are working to divert unused water back into the ground,” he said. “This water would go to waste, so putting it into the aquifer for future use is very valuable for everybody concerned. We would like to see more projects like those in Iron County throughout the state.”

## Conserving for the future

Monroe has noticed help from the agriculture industry in Iron County, which is switching to newer technologies to conserve water that was previously being blown away by the wind or evaporating into the air.

“Some of these drip systems can conserve up to 30 percent of the water being used on crops,” he said. “If agriculture uses 80 percent of our water that would be roughly 4,000-acre feet, which is about half of our deficit. It is a big help when those in agriculture step up their game and conserve.”



*With the use of existing infrastructure and some unused materials, CICWCD is recharging aquifers as well as protection from floods. Photo from March 30, 2017. (Photo: Haven Scott / The Spectrum & Daily News)*

Some in the industry are even changing the dynamic of their crops to help with the water shortage, Cozzens said.

“They are even planting different crops to achieve those means,” he said. “Some are switching from alfalfa to corn, which uses less water.”

In the end, all residents should conserve where they can and teach the younger generation to do so as well, Monroe added. Whether simply turning off the water while brushing one’s teeth, or paying attention to how efficient one’s lawn sprinkler system is operating, “every drop counts.”

For tips on how to conserve water in your home, visit [cicwcd.org](http://cicwcd.org).

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