IRON COUNTY Today

1/6 Court battles threaten Cedar Valley's water future

by Ashley Langston, Reporter

IRON COUNTY – In an effort to ensure Cedar Valley's future, the Central Iron County Water Conservancy District is currently involved in several legal battles over water in valleys to the northwest.

The Cedar Valley aquifer, an underground water source that supplies most of the water for communities and agricultural use in Cedar City, Enoch, Kanarraville, and much of unincorporated Iron County, is being overdrawn and the district has been hard at work to find more water for the area.

After rejecting the Lake Powell Pipeline project because of its high cost estimates, the district placed most of its hope for balancing the aquifer and providing for future growth on water rights applications filed in 2006 in three valleys – Pine (for 15,000 acre-feet), Wah Wah (for 12,000 acre-feet) and Hamlin (for 10,000 acre-feet).

When notice of those applications was published, a rain of protests were filed, mostly by the Beaver County government, Beaver County residents, and federal agencies. The state engineer had a hearing for those protests in 2010.

Jack Barnett, of Barnett Intermountain Water Consulting, a company working with the Central Iron County Water Conservancy District, said in August 2012 another water right filing was made in the Wah Wah Valley. It was made by the company Utah Alunite, a subsidiary of the Canadian company Potash Ridge, which plans to develop a phosphate project in the Wah Wah Valley on School and Institutional Trust Lands Administration property.

The application requested water "almost on top of the well sites identified in the (2006) district filings," he said.

On May 13, 2014 the CICWCD received approval on 15,000 acre-feet of water in the Pine Valley and 6,525 acre-feet of water in the Wah Wah Valley. The Hamblin Valley filings remain unruled on.

In a May 15 press release from the Central Iron County Water Conservancy District, CICWCD General Manager Paul Monroe said since rejecting the Lake Powell project "the West Desert water has been referred to as Cedar Valley's 'last straw,' or the ability to import water from another basin. The additional water from the West Desert will have the largest impact on restoring our aquifer levels, provide safe and reliable drinking water, and ensure there is a future

for our children here in Iron County."

"This water will have more of an impact on the future of Iron County than any single event that has happened in the past decade," Monroe said in the release.

On May 14, 2014, the day after the CICWCD's filings were approved, Utah Alunite received approval on its filing. The district expressed a desire to have a productive relationship with Utah Alunite, despite possible challenges.

However, on June 19 the state engineer issued an amended order that contained new language district board members and legal counsel found troubling.

Now, several legal cases are pending, including Utah Alunite's appeal against the CICWCD's water right, Utah Alunite's appeal against the state as it contests the language in its water right, the CICWCD's appeal against the state as it contests the language in its amended water right approval for the Wah Wah Valley, and two cases in which Beaver County is opposing the CICWCD.

Despite the legal challenges, the Central Iron County Water Conservancy District is moving ahead with the process of bringing the West Desert water to the Cedar Valley.

District Engineer Kelly Crane, of Ensign Engineering, said the district has determined the most desirable corridors for a pipeline, which would be underground and mostly follow existing roadways. The CICWCD has submitted those corridors to the Bureau of Land Management and the BLM is putting them into its in-process Resource Management Plan, which will go through the National Environmental Policy Act process.

The CICWCD also has a meeting scheduled with BLM and other federal representatives to discuss how to best approach the NEPA process for the West Desert pipeline project, Crane said.

While these federal processes can be lengthy, current estimates are that construction on the pipeline could begin in as few as seven to 12 years.

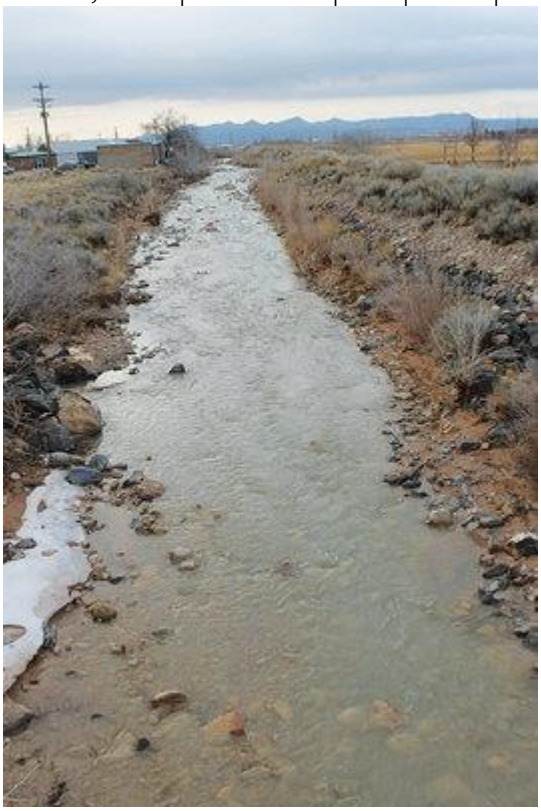
"We are constantly working on ways to make the project better and more efficient," Crane said. "We are working hard now to do the preparation so that we can build the project appropriately and make it the most cost effective over the long term for the users of water here in the Cedar Valley."

For more information on Cedar Valley's water situation, the Central Iron County Water Conservancy District, and what government agencies are doing to ensure the valley's future, look for the next five articles in this series, running through March 4.

2/6 Cedar Valley water sources developed

by Ashley Langston, Reporter

Feb 04, 2015 | 998 views | 0 | 16 | |



Coal Creek flows through Cedar City. It provides most of the recharge to the valley's underground aquifer and provides irrigation for farmland. The creek was a significant reason Cedar City's settlers chose the community's location. | Photo by Ashley Langston

IRON COUNTY – Since settlers were sent from Salt Lake City to build communities in Iron County, water has been a challenging issue, and while irrigation and the pumping of water from an underground aquifer have allowed the area to thrive, the challenges continue.

When Cedar City and its surrounding communities were first founded, residents were able to use Coal Creek, other streams, and natural springs in the area to live and grow crops. However, as more settlers arrived, residents knew there would not be enough water in the streams to support the increased population all year, every year.

Jack Barnett, of Barnett Intermountain Water Consulting, a company working with the Central Iron County Water Conservancy District, said early settlers began using a system first adopted by miners called "first in time, first in right," a water right principle that continues in Utah. The first water put to use, or the senior priority water right, is entitled to all the water necessary to fill that right before the next priority right receives any water at all.

With a limited supply of water, good water rights became valuable and were treated as real property, first recognized by church courts and then by territorial law, he said. As Utah moved into statehood, the office of the state engineer was created by the legislature to administer the use

of all water in the state.

“In 1903, legislation was passed that declared that the waters of the state were owned by the citizens of the state and the state would hold this natural resource in trust for the citizenry and administer water rights granted by the state,” Barnett said. “The legislation also recognized all uses of surface water made before 1903 and required that all future surface water rights must be established by the filing of an application (a proposal) with the state engineer.”

Over time, residents learned they could drill wells in the valley to access water for their families and livestock. They then drilled larger wells, installed pumps and began using water from the underground aquifer, also known as groundwater, to grow their crops. In 1934, legislation was passed that required residents to apply for groundwater rights through the state engineer. Water rights were granted through the state office, but it was unknown how much water was actually available underground.

After residents noticed they had to drill deeper to pump water and aquifer levels were declining, wells were established to observe and measure the decline.

“By 1966 the state engineer published a brief report which found that the use of the groundwater had exceeded the natural recharge to the groundwater resource in Cedar Valley,” Barnett said.

More water was being used than was going into the ground. Now, significantly more water rights exist than there is actually water available to fill those rights. Even though not all water rights are fully used, too much water continues to be removed from the aquifer, drawing the water table down. This is referred to as “mining” the aquifer.

Statistics from a 2014 Utah Geological Survey report show that from all sources, about 33,500 acre-feet of water goes into the aquifer in an average year, and about 42,700 acre-feet are removed each year, mining the aquifer of more than 9,000 acre-feet each year (an acre-foot of water is about 325,851 gallons, which is approximately a football field buried in one foot of water).

In addition to dealing with the already declining water levels, officials in Iron County must look to the future and plan for growth.

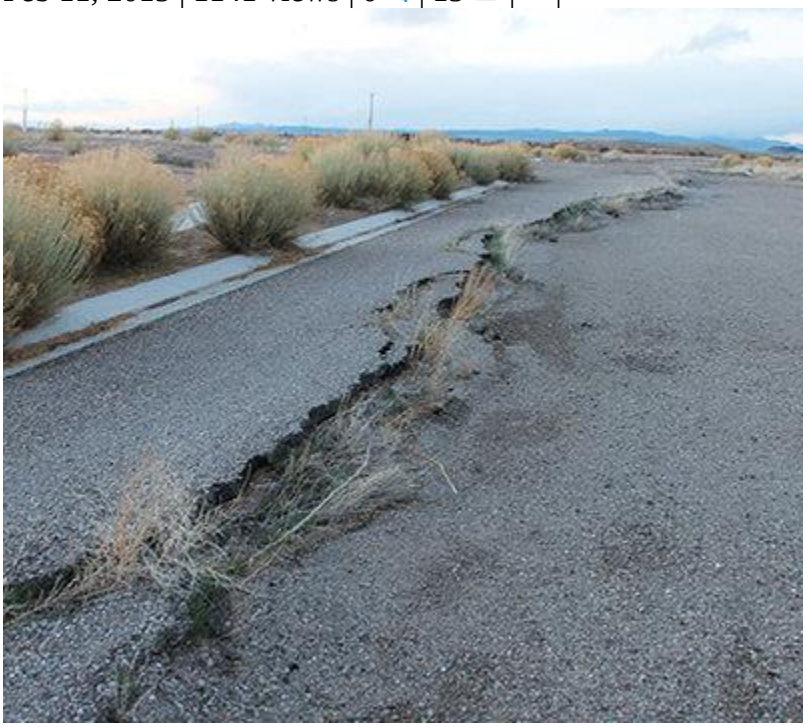
According to a report by the Utah Foundation published in September 2014, Iron County is expected to see a population increase of 129 percent between 2010 and 2050. The population is projected to jump from 46,163 to about 105,797.

The entity tasked with making sure Iron County does not run out of water is the Central Iron County Water Conservancy District, formed in 1997. To learn more about the district and what it is doing to preserve the area’s future, watch for the next articles in this weekly series.

3/6 Declining water level, sinking land highlight water problem

by Ashley Langston

Feb 11, 2015 | 1141 views | 0 | 15 | |



A fissure, or crack in the earth, has displaced asphalt and damaged infrastructure in an uninhabited Enoch subdivision. The fissure is believed to be caused by overdrafting of the underground aquifer, or removing more water than is being recharged each year, according to a Utah Geological Survey study. | Photo by Ashley Langston

This is the third in a series of six articles about water in Iron County. The first published Jan. 28 and the articles will run weekly through March 4.

IRON COUNTY – Since at least the 1960s, more water has been removed from Cedar Valley's underground water supply than has been replenished, and that problem is only getting worse.

This means declining water levels, higher pumping costs, and the reality that the valley could eventually run out of water if action is not taken. With the knowledge of this problem, the Iron County Commission created the Central Iron County Water Conservancy District in 1997, under the Utah Water Conservancy District Act.

The CICWCD is controlled by a seven-member board of directors, with each member appointed by the Iron County Commission. Currently, members come from each community in the district, with an agricultural representative as well. The district has the responsibility to "conserve, develop and stabilize supplies of water" for the Cedar Valley, according to its website, www.cicwcd.org.

Many small population counties in Utah have also created water conservancy districts, such as Kane, Uintah, Duchesne and Box Elder, and some water conservancy districts have been created for larger geographical areas, such as the Central Utah, Washington County, Weber Basin and

Jordan Valley Water Conservancy Districts, said Jack Barnett, of Barnett Intermountain Water Consulting, a company working with the CICWCD.

Water conservancy districts were created because city and town officials are responsible for looking out for their individual municipalities and water is a "larger geographical issue," Barnett said. Even county commissioners, as elected officials, "may not have the tenure to address long-term planning and implementation strategies necessary for water development."

The Central Iron County Water Conservancy District is tasked with conserving, developing and stabilizing existing supplies of water for the use of residents, agriculture and livestock, manufacturing, power, wildlife, and aquatic life, according to its mission statement.

The mission statement stresses the importance of water for communities, industry, and irrigation. The CICWCD's geographical area includes much of unincorporated Iron County, Cedar City, Enoch, and Kanarraville.

The district is also responsible for developing additional water supplies and should "plan for, finance, design and construct reservoirs, pipelines, water distribution systems, wells, drainage improvements and other improvements necessary to utilize water supplies within the CICWCD boundaries."

After its formation, the district cooperated with Cedar City, Enoch, and state and federal agencies to initiate a new study, which was published in 2005 by the U.S. Geological Survey. The study confirmed concerns that the Cedar Valley was using too much water, Barnett said. The underground aquifer was being overdrawn, or more water was being pumped out than was being regenerated.

An average of 9,100 acre-feet of water is being removed each year in excess of what is replaced (an acre-foot of water is about 325,851 gallons). Additionally, groundwater levels have dropped in some areas of the valley by as much as 114 feet since 1939, Barnett said.

In 2010, the Utah Geological Survey released a study reporting that fissures, or cracks in the earth, were forming and growing in the Enoch and Quichapa Lake areas because water users were overdrawing the aquifer and the land was subsiding, or sinking. An amended version of the study was released in 2014 as Special Study 150, which can be found at www.geology.utah.gov.

The original study was contested by Cedar City Surveyor Curt Neilson and other licensed surveyors who said the UGS had violated state law by surveying without a license, and that the subsidence data it had provided was inaccurate. In 2011, when the CICWCD board rejected the study, Neilson said he believed subsidence was not a wide-spread problem in the valley, but actually was a localized problem near fissures in the Quichapa and north Enoch areas.

The 2014 study reported a less significant amount of subsidence, but expressed concern with possible growth of the fissures. Monroe said some board members and area residents feel geographic features or other factors may be contributing to the fissures.

Tyler Knudsen, UGS project geologist, said the Enoch fissure is located along a fault, and although there are reports of the fissure dating back 50 years or more, aerial photographs show that it appears to be growing, extending south in the last 20 to 30 years.

“It’s obvious that it’s currently moving,” he said.

Knudsen added that subsidence and fissures recorded by the UGS in the Cedar Valley follow the signs of aquifer overdrafting that have been seen in the Las Vegas area.

“Vegas is almost a perfect analog,” Knudsen said. “You can kind of look at Las Vegas as kind of a canary in a coal mine kind of situation for us.”

While not everyone in the Cedar Valley agrees on the amount of subsidence and cause of the fissures, it is widely accepted that the Cedar Valley aquifer discharge should not exceed the recharge, and action needs to be taken to bring it into balance and ensure a water supply for future generations.

Monroe said the district has been working on multiple solutions, including conservation and three large-scale projects that are exactly in line with the Utah Geological Survey’s recommendations to prevent over pumping and restore the aquifer.

For more information on the options that have been explored and action being taken, look for the upcoming articles in this weekly series.

4/6 Conservation a piece of the water puzzle

by Ashley Langston, Reporter

Feb 18, 2015 | 458 views | 1 | 5 | |

Workers install a smart controller, weather station and flow meter at Three Peaks Elementary during a June 2014 project. The Central Iron County Water Conservancy District has partnered with Cedar City and the Iron County School District to install the new systems and promote water conservation. | Photo by Ashley Langston

This is the fourth in a series of six articles about water in Iron County. The first published Jan. 28 and the articles will run weekly through March 4.

IRON COUNTY – The Central Iron County Water Conservancy District is continually looking for ways to stop the decline of water levels in Cedar Valley's underground water supply, and has taken into consideration the need for conservation, and the changes that could occur to the valley's water use as growth occurs.

Conservation is an obvious first step. With that in mind, the district created the Water Conservation Advisory Board to research and promote water conservation.

Cedar City resident Doug Hall serves as advisory board chair and Candace Schaible, CICWCD and Utah State University Extension water-wise landscape and horticulture educator, along with representatives from Southern Utah University, the Iron County School District, Cedar City Corporation, Enoch City Corporation, and businesses Southwest Plumbing Supply and Rocky Ridge Landscape Rock also serve on the board.

So far, the board has worked primarily with Cedar City and the school district to encourage better management of water resources, since the two organizations are some of the largest water users in the area because of parks and fields, Hall said.

The CICWCD purchased new smart controllers for the sprinkler systems at two Cedar City parks and at Three Peaks Elementary, and the city and ICSD are tracking the amount of water potentially saved with the new controllers.

Hall said he hopes the results will be positive enough that the city and school district will be motivated to install more smart controllers and as a result, save more water.

In June, when the Three Peaks controller was installed, Hunter Shaheen, Iron County School District's energy manager, said the pilot project was another step in the right direction for the school district, which has worked the past few years to balance attractive grounds and fields with fiscal responsibility and water conservation. While there were still some challenges, particularly with sprinkler systems with no central control box (primarily at older schools that have had building additions), the district has made strides since 2011, decreasing water use by about 36 percent, Shaheen said.

Hall said he has had positive conversations with Cedar City officials and he feels the city is making water conservation more of a priority as well.

The advisory board's next focus will be on businesses to encourage business owners, landscape companies and building owners to manage their water use. The focus after that will be on residents in general, Hall said. He added that while the bigger water users have been the primary focus, things have been done on all levels and conservation efforts will continue. Free sprinkler checks for individuals and businesses have been performed by Schaible the past couple summers, and water-wise education has been offered for landscapers.

County Commissioner Dale Brinkerhoff said conservation is important and residents should be "practical," finding a balance between wise water use and a good quality of life.

While the CICWCD is certainly working on conservation, board members know conservation alone cannot bring the aquifer back into balance.

Agriculture as a whole is the largest water user in Iron County, as 532,464 acres (about 25 percent of the county's land), were farmland in 2012, according to the Utah Foundation.

Agriculture is also an important part of Iron County's heritage, and District General Manager Paul Monroe said county officials and the CICWCD board want to keep that heritage intact.

"It's not our purpose to go out and buy out all the farmland in Iron County and subdivide it. If it happens naturally, it happens," he said.

Brinkerhoff said all water in Utah is owned by the state, and rights are granted and controlled by the state, which is appropriate. It is a system that works, he said.

Those on a state level are also concerned with the health of the Cedar Valley aquifer and now monitor agricultural water users throughout Utah. Kurt Vest, regional engineer for the Utah Division of Water Rights Southwestern Regional Office, said just in the past year, the state has begun mapping water use in Iron County, and while it mainly keeps track of large irrigators, the majority of water users in Utah are tracked to ensure they are within their rights.

Vest said as the county grows, some agricultural land will naturally be converted to residential

neighborhoods, and though the water right will remain the same, less water will generally be used.

Vest added that while many believe agricultural water rights are reduced or "cut" when they are transferred over to residential use, that is not true. One-acre foot of water right is 1 acre-foot even if it changes hands from a farmer to a municipality, he said.

Though agricultural to residential conversion will likely result in less water consumption, it will not make too much difference in the overall picture. Monroe said the aquifer is already being overdrawn and there are many unused water rights on paper that technically can be put to use as the population grows, further mining the aquifer.

In the Beryl and Enterprise area, when it was found that almost double the sustainable yield of water was being removed from the aquifer each year, the state engineer got involved and mandated that water rights would have to be retired.

The Beryl Enterprise Groundwater Management Plan was adopted in 2012, and requires 3,250 acre-feet of water rights be retired in 2030 and 2050, and the same amount every 10 years after that until the available water rights are in line with the average recharge.

This strategy has been rejected by the CICWCD board. Board members feel there are much more desirable options than cutting water rights.

Although the district's efforts in conservation and the future transition of agricultural land are part of the picture, neither will provide enough water to bring the aquifer into balance or accommodate future growth. For information about the district's large-scale projects, look for the next article in the series on Feb. 25.

5/6 District pursues aquifer projects, importing water

by Ashley Langston, Reporter

Feb 25, 2015 | 194 views | 0 | 0 | |

This is the fifth in a series of six articles about water in Iron County. The first published Jan. 28 and the articles will run weekly through March 4.

IRON COUNTY – With the knowledge that the current water situation in the Cedar Valley will not be beneficial to future generations or conducive to growth, the Central Iron County Water Conservancy District and other branches of government have been working to find solutions.

More water is removed from the underground aquifer each year than is replaced, and water levels have been dropping for decades.

Faced with the challenge of bringing the aquifer back into balance, and accommodating what the Utah Foundation estimates will be a 129 percent population increase between 2010 and 2050, the district, county and municipalities, as well as businesses, organizations and residents, will have to pitch in and work together, CICWCD General Manager Paul Monroe said.

The Central Iron County Water Conservancy District is working actively on two large projects, including an aquifer recharge project and an aquifer balance project.

The recharge project is a joint effort with the Utah National Guard and is hoped to be completed in summer of 2016. It will include the construction of gravel pits that will trap excess water from Coal Creek during high runoff years and allow it to percolate into the aquifer rather than evaporating in Quichapa Lake and Rush Lake.

The aquifer balance project would involve reducing the amount of water pumped from areas of the aquifer that are seeing the worst water level decline, such as the Quichapa Lake area. The project would disperse wells throughout the valley instead of keeping them concentrated in just a couple areas. It would focus on pumping in areas that have higher water levels.

To do this, the CICWCD's existing water system, which serves neighborhoods in unincorporated Iron County, would have to be connected with Cedar City's system.

Cedar City Engineer Kit Wareham said more than 1.3 billion gallons of water were pumped from the Quichapa area last year to service Cedar City. The city's major well field is in that area, with five wells operating and seven in existence. District Board Member and Cedar City Council Member Paul Cozzens called the water from those wells "pristine." Cedar City's only other wells are in the Enoch area, with two of three currently in operation.

There are challenges to the aquifer recharge plan, such as the fact that Cedar City's system runs on a higher pressure than the district's and a booster station would have to be constructed to inject the district's water into the city's lines, Cozzens said.

Wareham said Cedar City's system runs at 60 to 250 pounds per square inch and Monroe said

the water district's runs at 45 to 100 pounds per square inch.

The CICWCD's system is already connected to Enoch's system, so the two entities can help each other in emergency situations, Monroe said. The Enoch and water district systems run at a more comparable pressure.

Cozzens said discussions are taking place between the entities. Connecting the CICWCD and municipal systems and pumping water from a variety of locations in the valley was one of the recommendations the Utah Geological Survey suggested to mitigate overdrafting, the growth of earth fissures (large cracks in the ground) and subsiding, or settling, ground.

While both these projects are expected to improve the health of the aquifer, it is not believed they can do enough, or provide for future growth. The CICWCD believes the best solution to recharge the aquifer and provide for the future is to import water from another basin.

Though the Lake Powell Pipeline Project was an option for several years, and is still on the table for Washington County, the district rejected participation in the project in March 2012.

Cozzens said the project was simply not financially feasible for Iron County. It was estimated that Lake Powell Pipeline water would cost around $20,000 per acre-foot, require construction of a treatment plant and have the added cost of power to pump it uphill from Washington County, he said. Over 50 years, the cost was estimated at around $1 billion just for the Cedar Valley.

"Financially it just didn't pencil out," he said. "There's no way we could have afforded that."

If Iron County had continued participation in the project, it was designated to receive 13,000 acre-feet.

Jack Barnett, of Barnett Intermountain Water Consulting, a company working with the Central Iron County Water Conservancy District, said before pulling out of the Lake Powell project, the CICWCD hired his consulting firm to search for other water sources, and he informed the board there were three valleys far west of Cedar Valley "that held promise."

The valleys of interest were the Wah Wah Valley, the Pine Valley, and the Hamlin Valley, all northwest of Cedar City. In October 2006, applications on the CICWCD's behalf were filed with the state engineer for 12,000 acre-feet of water in the Wah Wah Valley, 15,000 acre-feet in the Pine Valley, and 10,000 acre-feet in the Hamlin Valley.

To read more about the results of those filings, look for the next and final article in our series in the March 4 edition.

Read more: Iron County Today - District pursues aquifer projects importing water