

## SUBMISSION OF WATER DEVELOPMENT PROJECTS

		FOR AGENCY USE ONLY
Through the development of scientific studies defining the aquifer within the Cedar Basin it has been documented that additional water resources will be necessary to sustain the growth and further development of the area. Without water for the future economic development will be impacted by the availability and cost of existing water supplies to accommodate only the growth capable within our current water budget. This template is being developed for the purpose of helping to document additional water supply sources that could be utilized to further alleviate the deficit of water that we currently have and provide water for the future residents of the valley. This form will be evaluated for completeness of content. Please ensure that the proposed project is fully defined and information to substantiate the claim is submitted for a complete evaluation.		Application Number
		Date Filed
Name and address of applicant ( <i>include zip code</i> ) Central Iron County Water Conservancy District 88 E. Fiddlers Canyon Rd. Suite A Cedar City, Utah 84721	Name, title, and address of authorized agent if different from item 1 ( <i>include zip code</i> )	Telephone (area code)
		Applicant
		Authorized Agent

- A. Provide names, addresses, phone numbers and email addresses of those who filled out this form.  
Kelly Crane, PE, District Engineer, Ensign Engineering and Land Surveying, 1870 North Main Street, Suite 104, Cedar City, Utah 84721, 435-865-1453  
Paul Monroe, General Manager, CICWCD, 88 E. Fiddlers Canyon Rd. Suite A, Cedar City, Utah 84721, 435-865-9901

B. Project Description (Details are Vital)

1. Scope of Work and Project Description
2. Type of System or Facility
3. Quantity of Water Anticipated
4. Scientific Analysis of Water Resource
5. Uses (irrigation, culinary, industrial etc.)
6. Years Resource is Available
7. Constructability
8. Additional information to describe resource and availability (utilize additional sheets as necessary)

Scope of Work - Aquifer Balance

Much of the water used in the Cedar Valley Basin is pulled from same aquifer. This aquifer extends from the south end in Kanarrville to north county line. The aquifer balance project will help to alleviate draw demand from the aquifer in areas that have a high density of wells to areas that have fewer wells. To start, a well field will be placed northwest of Enoch between Lund Hwy and Minersville Hwy. Wells placed here will help balance the water withdrawal across the valley. It is anticipated that wells on the north end of the valley will produce approximately 3,000 acre-feet per year. This estimate is based on the amount of water that could be utilized to help recover the aquifer levels in the south end of the valley along with recharge and recovery. The number of wells placed in this area will have to be evaluated to ensure that the aquifer isn't depleted; however, it is proposed that 4 wells be drilled in this area. Once completed and in production the wells on the south end of the valley will be idled to help restore aquifer levels through natural infiltration as well as through recharge and recovery. Coordination and cooperation from Cedar City is important to the success of this project. If the wells are not idled in the south end of the valley then the basin will continue to see a drop in water levels within already depleted regions rather than recovery.

Type of System or Facility

Project will include construction of a minimum of 4 wells in the north end of the valley with the necessary pipeline to connect to existing CICWCD pipeline infrastructure, construction of a new storage tank, and construction of a connection and booster station to Cedar City's drinking water system. More wells could be constructed if the 4 planned wells do not produce enough water to produce a minimum of 3,000 acre-feet.

Quantity of Water Anticipated

The aquifer balance project will withdraw 3,000 acre-feet from the north end of the valley and reduce the withdrawals by 3,000 acre-feet from the south end of the valley. This estimate is based on best management practices to allow the aquifer water levels to balance; meaning that levels become stable throughout the valley or increase/decrease at the same rate.

Scientific Analysis of Water Resource

In 2014 UGS performed Special Study 150 studied the water levels and land subsidence in the Cedar Valley Basin. The study showed that the water level in the south end of the valley had dropped significantly. In some cases as much as 139 feet. Yet, the north end had little to no decline compared to historic water levels and in some places water mounding had occurred. Water quality has been sampled in the area and water quality appears to meet drinking water standards.

Water quality will need to be verified by samples done by CICWCD. The information from them will allow the District to see if treatment will be required to place the water into the drinking water system.

Uses

The water from the wells on the north end would be placed into the CICWCD water system to serve its customer base as well as connect to Cedar City's water system to supply them with additional water. This would allow Cedar City to idle its wells located in the areas that have had the most decrease in water levels.

This project would also be a starting point for CICWCD and Cedar City to integrate and connect their water systems. With the west desert project progressing, the aquifer balance would continue to restore water levels in the south end of the valley and especially in Cedar City's well field.

Years Resource is Available

The water would be available on an annual basis.

#### Constructability

The wells and pipeline constructed in the north end of the valley are located on private land. The property owner is willing to allow CICWCD to develop and construct wellhouses. The pipeline would need easements and rights-of-way granted across private property until it can connect to existing infrastructure. The new tank will be located on BLM land where there is already an existing tank. The connection site and pumphouse to Cedar City's system would be located in a county right-of-way or on private property. Funding for this project would come from loans and grants from state (Division of Drinking Water) and federal (United States Department of Agriculture) agencies. Depending on the funding source, the project may need to be broken apart in funding because Cedar City does not fall within the requirements. Coordination and cooperation with Cedar City will make this project a success.

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C. Attach a map covering the area of development and location of proposed project.

1. Identify Property Ownership
2. Identify Potential Conflicts
3. Provide Details of the Area and Necessary Changes to the Area  
See Attached Exhibit

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D. Identify any Federal, State or Local Government Issues

1. Federal
  - a. Army Corp of Engineers
  - b. Bureau of Land Management
  - c. Fish and Wildlife
  - d. Forest Service
  - e. Other

BLM owns the property that the new tank is located. There is an existing tank located in the area and negotiations would need to take place for the new tank.

2. State
  - a. Department of Environmental Quality
  - b. Division of Water Rights
  - c. Other

Division of Water Rights would need to be in cooperation to locate new points of diversion for the water rights.

3. Local
  - a. County
  - b. Municipal
  - c. Other

Cedar City will need to agree to purchasing water from CICWCD as well as supplying excess water to CICWCD. This agreement will also need to carry over to the west desert project ensuring that balancing the aquifer is a common goal.

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E. Provide cost estimates of project

The wells for the aquifer balance project are proposed to be drilled along Lund Highway at the north end of the valley and are estimated to cost \$3,410,000. This cost is estimated for drilling 4 wells, the construction of 4 well houses, the plumbing and electrical for each well, and an 18" transmission line from the wells to the connection to the Cedar City water system. A new tank on the BLM property will be 5 million gallons and will cost an estimated \$5,000,000. The pumphouse connecting CICWCD to Cedar City will cost an estimated \$1,000,000.

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F. Describe additional evaluated alternatives, if any

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G. Describe any environmental effects the proposed project would have on wildlife and/or plant species

During construction of the well houses and the drilling of the wells, plants may need to be removed. However, when construction is complete the area will be re-vegetated with plants native to the area to ensure minimal impact on other plants or animals.

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H. Provide cultural resource evaluations of proposed area

Will request a waiver from the Army Corp of Engineers for a delineation report.

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- I. Provide any additional information deemed necessary in the evaluation of this project to provide future sustainable water resources to the Cedar Basin

Adding these wells will help alleviate the draw from the existing wells, and help to balance the amount of water drawn from each end of the aquifer. In addition to adding sources to supply the valley with water, the wells will also provide a connection point for the west desert well project. This project does not add additional water to the overall system. It is really just to manage the aquifer in a more sustainable fashion until additional resources can be brought to take care of the deficit of water that is present in the Cedar Valley Aquifer.



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**CENTRAL IRON COUNTY WCD  
PROJECT PRIORITIES  
NOVEMBER 2014**

**AQUIRED  
BALANCE**

PROJECT NUMBER:      PRINT DATE:  
SUBJECT:                      9/12/2013  
DRAWN BY:                  JFN                      CHECKED BY:  
PROJECT MANAGER:      CLN                      CLN

**C 2.0**

P:\SU1037 CICWCD Master Plan Update\Civil\GIS\MXD\Water\Priorities\Lund Highway Well.mxd

LUND HWY

2300 W

**Legend**

 Lund Highway Well

**Pipelines**

 North Well Field Line

 Existing Pipelines

0 550 1,100 2,200 3,300 4,400 Feet