

Cost Comparison Study For Well Water Verses Jordan Valley Water Conservancy District Water Executive Summary

The City of Riverton (City) requested a comparison study be conducted to evaluate the cost of changing the primary source of culinary water for the City. This study was limited to the comparison of two alternatives. Alternative 1, continue pumping water from wells owned by the City for its primary source and purchasing water from Jordan Valley Water Conservancy District (JVWCD) as a back up and secondary culinary water source. Alternative 2 convert the water purchased from JVWCD as the primary source and use well water from City owned wells as back-up culinary water source. This study includes a qualitative comparison of the two alternatives and a quantitative analysis to compare the total cost of operating the culinary water system under each of the two alternatives. The total cost for each alternative is then converted to anticipated user rates to evaluate the feasibility of the second alternative.

The study is being conducted in an effort to explore the City's options to increase water quality. The total dissolved solids (TDS) content in water is associated with water hardness and may affect taste. The TDS in the water obtained from the City's wells is greater than that obtained from JVWCD. As a result, the City may choose to pursue Alternative 2 of using JVWCD water as a primary water source if the cost increase is not significant and no other serious consequences result due to making the change.

The benefits that Riverton City would see resulting from the added use of JVWCD water include:

- Reduction in TDS and thus a perceived increase in water quality
- Reduction in power and maintenance cost associated with operating the culinary wells

The disadvantages of converting to JVWCD as a single source would include:

- Increased water purchase rates from JVWCD thus higher monthly costs
- System upgrade cost to make the system switch possible
- Pump stations, wells, and reservoirs will still need to be maintained to remain operational
- Steeper water rate increases
- Potential loss of some City owned culinary water rights
- Potential loss of water rights on the effluent from a proposed waste-water re-use program

It would take Jordan Valley one to two years to upgrade their system, making this system switch possible. Improvements over and above those identified in this study would be required to achieve adequate system pressures and fire flows throughout the City. The operating costs of the culinary water system for the 10-year study period, 2009-2018 were estimated for each of the two alternatives. These costs included direct cost for system upgrades that are known to be necessary for the system switch to happen. These costs were estimated based on historical cost data and cost increase rates, projected growth rates, and rate data and projections provided by JVWCD. The total cost for the study period along with a rate summary for each alternative is shown in the table below.

**ALTERNATIVE 1 & 2 COMPARISON
2009 & 2018 SUMMARY**

	2009			2018			Total Cost to City (Study Period)
	Base rate per month	Tier 1 rate (\$/1000 gal)	Average monthly bill	Base rate per month	Tier 1 rate (\$/1000 gal)	Average monthly bill	
Alternative 1	\$19.14	\$1.25	\$22.99	\$21.74	\$1.42	\$26.11	\$31,347,550
Alternative 2	\$25.10	\$2.14	\$31.69	\$36.36	\$3.10	\$45.95	\$49,142,276

Cost Comparison vs. Constructing a Membrane Treatment Plant

Another possible alternative to address the water quality concerns of Riverton’s wells would be to construct a membrane treatment plant (Alternative 3). This alternative was beyond the scope of this study. However, a study was conducted for this option with a cost update made in May of 2007. The cost per acre-foot of water treated was estimated to be \$232 at that time. It is estimated that this figure would be \$250 per acre-foot in today’s dollars. This cost could be added to the cost of Alternative 1 to compare the membrane treatment alternative to Alternative 2. The cost per acre-foot for culinary water under Alternative 1 and Alternative 2 are listed for each year of the study period in Table 6 and Table 10, respectively. The 2007 cost update of the treatment plant study is available in Appendix D. The comparison of these alternatives as follows:

	Alternative 1	Alternative 2	Alternative 3
JVWCD Purchased Water (AF)	620	4592	620
Purchase Cost (\$/AF)	\$392.40	\$382.37	\$392.40
Total Purchase Cost 2009	\$243,288.00	\$1,755,843.04	\$243,288.00
Total O & M Cost 2009	\$2,321,091.93	\$2,040,878.84	\$2,321,091.93

Sub-Total	\$2,564,379.93	\$3,796,721.88	\$2,564,379.93
Treated Water 2009 (AF)	0	0	3972
Treatment Cost (\$/AF)	-	-	\$250.00
Total Treatment Cost 2009	-	-	\$993,000.00

Total	\$2,564,379.93	\$3,796,721.88	\$3,557,379.93
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Actual Culinary Water Consumed By Residents

Readers evaluating the alternatives need to recognize the decision of implementing either Alternative 2 or 3 would be made to address a small fraction of the total culinary water that is consumed. The average person only consumes (drinks) about a half gallon (64 oz.) or water each day. This would result in less than four gallons a day per connection on average. This amount of water consumed is less than 1% of the average culinary water use in Riverton of 430 gallons per connection per day.

Note: The cost of disposing by product from the filtration process was not included in this study.