



Water for Jobs and Fish

Kennewick Aquifer Storage & Recovery (ASR)

The Project

The City of Kennewick, Washington (City) has successfully completed its first year of aquifer storage and recovery (ASR) pilot testing at their ASR-1 facility. In partnership with the Department of Ecology, the City is developing an ASR program to meet growing storage and capacity demands by injecting treated drinking water into a deep basalt aquifer during the winter and spring months, and recovering the stored water during the higher-demand summer months. This will improve water supply availability in the Columbia Basin during summer low-flow periods.

The City installed a remarkably productive supply well deep enough to limit the potential for interference with shallow system features while producing several thousands of gallons per minute. The target aquifer however, is warm; background temperatures are 81°F. Because water at this temperature is not suitable for municipal supply, this condition represented the biggest threat to project feasibility. Consequently, the Phase 4 testing was designed to assess thermal storage zone development as rapidly and efficiently as possible.

Pilot testing was completed in 2014. The testing program was very successful, and clearly demonstrated the viability of Kennewick's project; no thermal or hydraulic limitations to ASR operations were identified. There is no evidence of aquifer clogging, thermal storage zone development is easily achieved, and both source and recovered water met all drinking water criteria.

Additional monitoring and managed recovery efficiency are needed to condition the aquifer on an operational scale and evaluate the expected improvements in recovered water quality as they occur. This testing program demonstrates that the City can proceed with storage zone development working toward a thermal recovery efficiency of 100% while delivering high quality drinking water that meets all Safe Drinking Water Act criteria. Compared to current project development costs, this operation will occur at a cost that is approximately 5 percent of the cost of developing equivalent in-system storage. GSI Water Solutions Inc. has developed recommendations for 2015 ASR operations targeting a storage of 150 MG in 2015, and recovery of 117 MG (78 percent) to develop the thermal storage zone.

Special accommodations: To request ADA accommodation for disabilities, or printed materials in a format for the visually impaired, call the Office of Columbia River at 509-575-2490. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.



Project Costs

- City of Kennewick: ○ \$1,380,182 (est.)
 - Ecology: ○ \$2,430,183 (est.)
- Total: \$3,810,365 (est.)

Project Benefits

- Capture water when available for use when supplies are limited.
- Efficient use of existing water rights.
- Net benefit to stream flow in Columbia River during low flow times.
- Redundant water supply for City of Kennewick that is cost effective.
- Increased ability to meet peak municipal water demands while minimizing impact to Columbia River.

For more information, please contact Dave Nazy, with the Office of Columbia River, at (360) 407-6038

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