

Public/Private Partnerships

The Clovis Water Reuse Facility is the first tertiary treatment plant in California to be completed using a design-build-operate procurement method. While the City owns the Water Reuse Facility, a private engineering firm, CH2M Hill, designed and built the \$40-million project and will operate the neighborhood-friendly facility through 2018.

This marks a significant step forward in terms of advancing the concept of public-private partnerships for advanced water reuse facilities in the state. It is also only the second municipal wastewater treatment plant in California's Central Valley to receive a permit from the Regional Water Quality Control Board within the past 20 years, demonstrating the City of Clovis' ability to partner with state regulatory agencies to gain consensus and approval on innovative treatment design.



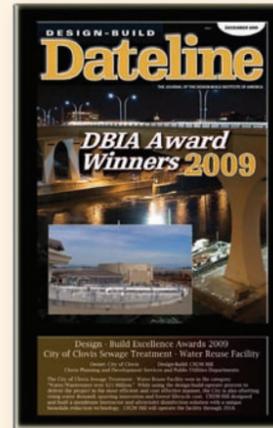
A Safe & Tested Resource

The Clovis Water Reuse Facility treats its wastewater to tertiary-treated recycled water standards (also referred to as advanced water treatment) which is the highest level of treatment defined by the State of California; this level of treatment allows for unrestricted reuse in virtually all recycled water applications.



The City's recycled water is monitored and tested daily to ensure that it consistently meets these high-quality standards. This ensures water quality which far exceeds its intended use. In thousands of applications throughout the U.S., there has never been a documented illness from recycled water that has been installed and used per regulations. The City has a sophisticated system of physical controls and checks to ensure that the recycled water and drinking water systems remain separate. Further, the City's use of recycled water is heavily regulated by the Water Quality Control Board and the State Health Department.

Project Awards & Recognition



Design-Build Institute of America
2009 Project Awards
Water/Wastewater Design-Build Excellence Award

Global Water Intelligence
2009 GWI Global Water Awards
Water Reuse Project Honorable Mention

American Academy of Environmental Engineers
2009 Excellence in Environmental Engineering
Design Honor Award

WaterReuse Association
2009 Award of Merit

Environmental Business Journal
2008 Achievement Award
Water & Wastewater

SIEMENS



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OUR WATER, OUR FUTURE

CITY OF CLOVIS WATER REUSE FACILITY



In early 2009, the City of Clovis' new, state-of-the-art Water Reuse Facility began producing up to 2.8 million gallons per day (MGD) of highly-treated recycled water. The water will be distributed through a network of purple pipes so that it can be used to irrigate green belts, median islands, parks, trails and paseos, State Route 168, and agricultural operations around the city.

The project is designed to allow multiple phases of future expansion. At its maximum capacity, the recycled water system will be able to produce and reuse up to 8.4 MGD of recycled water. By building-out the Recycled Water Master Plan, the City will be better able to meet its projected water needs over the next 25-30 years, while protecting our precious groundwater resource, reducing historic groundwater overdraft and enhancing groundwater recharge.

The City of Clovis Water Reuse Facility is a key element of sustainable, environmentally-friendly water resource management for our community. City leaders hope Clovis' recycled water program will provide a template for other communities that are grappling with issues of surface and/or groundwater shortages.



Illustration of Water Reuse Facility with mature landscaping.



The compact site arrangement makes efficient use of existing land, allows multiple phases of future expansion within the 16-acre site, and minimizes impacts on the surrounding environment.

Using Our Water Wisely

Every drop of recycled water that is used for irrigation or industrial purposes is a drop of precious drinking water saved. And every drop counts!

From 1912 (when the City was founded) to 1972, groundwater was the sole water supply for the City of Clovis. But groundwater is not a long-term sustainable water supply and overdraft in the regional aquifer resulted in groundwater levels dropping over 100 feet in the last 50 years. Wells were going dry due to dropping water levels and the well field infrastructure was threatened by contamination of natural and man-made chemicals.

In 1972, Clovis obtained access to surface water from the Fresno Irrigation District (FID). Some of that water is used to recharge groundwater supplies; some is sent to the surface water treatment plant – which was completed in 2004 – where it is treated and distributed as high-quality drinking water. Additionally, some of the FID surface water remains untreated and is used to irrigate City of Clovis park landscaping.

But water that can be treated to potable (drinkable) standards is a resource that is limited in supply and should therefore be reserved for the highest human uses whenever possible. That is why the City of Clovis took the necessary steps to develop a new water supply that is perfect for landscape irrigation and industrial applications. That new, sustainable water supply is highly-treated recycled water.

Designed With Neighborhood in Mind

The Clovis Water Reuse Facility is located on 16 acres situated north of Ashlan Avenue and west of McCall Avenue. In addition to the treatment facility, the recycled water system includes over 25 miles of pipeline and three pump stations that move the water to and from the treatment facility. As is done throughout the United States, the highly-treated recycled water leaves the plant in purple pipes, which makes it easy to distinguish the recycled water system from the drinking water system.



Pump Station E, designed to look like a "Craftsman" style home, blends into the surrounding neighborhood and serves as terminus for paseos.

To blend into its surroundings, one pump station, located near Ashlan and Leonard Avenues, was finished in the style of a 1940s "Craftsman" home. The garden area in the front yard of the "house" serves as the terminus for two paseos that are to be built as the area develops around the pump station.

At the Water Reuse Facility, buildings incorporate features of the "Prairie" style architecture, which results in attractive, low profile structures. For all pump stations and the Water Reuse Facility itself, great care was taken to incorporate noise and odor control features.



Purple colored pipes, which designate the presence of recycled water, are installed along the roadside.

Advanced Treatment Using State-of-the-Art Technology

At its maximum capacity, the Clovis Water Reuse Facility will be able to produce over 3 billion gallons (or 9,400 acre-feet) per year of disinfected tertiary-treated recycled water through a membrane bioreactor process. Three billion gallons of recycled water is equivalent to the total water used by 19,000 homes every year.



Submerged membranes undergoing final clean water testing.



Ultraviolet disinfection uses low energy for optimized power consumption that is one-third the amount of energy needed for competing UV technologies.

Membrane bioreactor is the latest, most advanced solution for recycled water treatment. It provides high-quality reuse water, exceeding the requirements of California's stringent Title 22 regulations. The technology combines activated sludge treatment with membrane filtration. The production of water of such high clarity, combined with the Ultra Violet (UV) technology, results in a lower cost to disinfect the water. The Cannibal process used reduces sludge production by 90 percent and eliminates the need for several treatment processes, thereby requiring less space than other treatment technologies to produce superior-quality recycled water.

In other words, this technology produces a higher-quality recycled water product compared to conventional systems and lowers costs by requiring less space for the plant and producing fewer solids that would otherwise require storage and disposal.