

FACILITY FOCUS

FRED HERVEY WATER RECLAMATION PLANT

Location: El Paso, Texas

Startup date: 1985

Service population: 130,000

Number of employees: 27

Design flow: 45,000 m³/d (12 mgd)

Average daily flow: 24,800 m³/d (7.5 mgd)



The Fred Hervey Water Reclamation Plant was one of the first facilities in the U.S. to treat reclaimed water to drinking water standards, improving its treatment processes during its 34 years of operation to meet changing regulatory standards along the way.

Parkhill Smith & Cooper
(Lubbock, Texas)

The Fred Hervey Water Reclamation Plant, which serves Northeast El Paso, Texas, was one of the first facilities in the U.S. to reclaim water to drinking water standards and use it for aquifer recharge. From 1985 to today, the facility has returned almost 114 million m³ (30 billion gal) of water to its local aquifer through injection wells and infiltration basins. This effluent also irrigates a local park and a golf course and is used at nearby power facility. This reuse reduces the amount of water pumped from the Hueco Bolson aquifer or diverted from the Rio Grande.

To spread the word about its treatment efforts, the facility welcomes visitors year-round. Some of the most frequent visitors

are from area schools and the El Paso Council of International Visitors.

For its stellar wastewater treatment efforts, the facility, in 1994, won second place in the No Discharge Category in the U.S. Environmental Protection Agency's Operations and Maintenance Excellence Awards. In 1998, it received the American Water Works Association (Denver) Conservation and Reuse Award. The facility also has received nine National Association of Clean Water Agencies (NACWA; Washington, D.C.) Gold Awards and two Platinum Awards for perfect program compliance under the expanded NACWA Peak Performance Award program since 2006.



The facility's flow equalization pond and storage system provides for short-term storage of above-average flows due to normal daily flow variations. This allows for a consistent influent flow. El Paso Water



The aeration basin tanks provide an environment where activated sludge organisms consume and remove suspended organic matter while added PAC adsorbs pollutants. El Paso Water



▶ When influent first arrives at the Fred Hervey Water Reclamation Plant, it undergoes preliminary treatment with bar screens to remove trash. Meanwhile, any flow that exceeds average daily flow is diverted to flow equalization ponds for temporary storage.

After screening, sedimentation tanks help to remove sand and organic matter. Collected solids are stabilized in anaerobic digesters; this digestion creates biogas that, in turn, generates electricity.

The wastewater, then passes into aeration basins where it is mixed with powdered activated carbon (PAC) for secondary treatment. Adding carbon to the biological treatment process helps to adsorb compounds that are not readily biodegradable. This reduces the chemical oxygen demand of the wastewater and removes toxins.

The secondary clarifier provides a calm, controlled flow zone where solids in the mixed liquor settle. The settled sludge, consisting of activated sludge and powdered activated carbon, is withdrawn from the tanks at a continuous, controlled rate by the return sludge pumps. Waste solids are dewatered with centrifuges and lime stabilized prior to landfill disposal. El Paso Water



As the first step in disinfection, the lime reactor mixes a high dose of lime to the treated water to raise the pH, kill viruses, and remove hardness, phosphorus, and heavy metals. Carbon dioxide is then added to lower the pH. El Paso Water



During the treatment, ozone is added to the treated water as the second step of the disinfection process for removal of viral and cyst organisms. The facility generates its ozone onsite. The action of ozone also breaks down organic material in the water improving the color, taste, and odor of the treated water. El Paso Water

▶ The disinfection system is a two-chemical process using lime and ozone. First, clarified water receives a high lime dose to raise the pH, killing viruses and removing hardness, phosphorus, and heavy metals. Carbon dioxide is then added to lower the pH. Next, sand filters are used to reduce turbidity. Then, the filtered water is disinfected with ozone, which is generated onsite. As a final polishing step, the disinfected water is passed over activated carbon granules. ❖



The sand filter removes light chemical flock from the effluent discharged from the second stage re-carbonation basins. This allows more effective contact of ozone with the pathogenic organisms and other oxidizable materials in the treated water. El Paso Water