



TOWN OF SILVER CITY
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Managing Wastewater is a Vital Service of Town Government ***Key to Public Health, Groundwater Protection and Economic Development***

By Lisa Jimenez

Ever wondered what happens to the contents of your toilet once you've flushed? Probably not, yet managing wastewater is a basic responsibility of local government, the importance of which is lost on most residents who pay for such services. Wastewater management is a vital component of groundwater protection, public health, and economic development.

"Every community lives and dies on water and waste," says James Marshall, Silver City's assistant town manager. "Managing waste, whether solid or liquid, impacts every resident, organization and business in town. We forget about those guys out there, but the work they do is critically important to our health, sanitation and ultimately our wallets."



Silver City wastewater flows through an 80-mile-long system of sewer lines which take the waste to the Municipal Wastewater Treatment plant, some three miles southeast of town. Much of the wastewater is gravity-fed to the plant, and the town operates three lift stations which move the sewage into a complex treatment process, before it is used to irrigate the municipal golf course and Glenn Ranch further east, then eventually flowing into San Vicente Arroyo and recharging the Mimbres Basin.

This recharge of the local groundwater was quantified in a 2010 hydrological study, which allowed town staff to apply to the New Mexico Office of the State Engineer for recharge credits, resulting in the town's ability to develop 747 acre feet of water rights near the Grant County

Chris Marrufo sends waste water effluent to Scott Park Golf Course and San Vicente arroyo, where it ultimately helps recharge the Mimbres Basin.

Airport. This water infrastructure is a vital part of a regional water plan to provide a more reliable and sustainable water source to the mining district, as well as Arenas Valley, Rosedale and other unincorporated areas of the county.

The Treatment Process

Wastewater first passes through a bar screen which removes solids, then flows into a grit chamber which helps break down any organic material, before the water then moves into clarifying tanks where solids settle to the bottom and the water is separated off to aeration basins. In these basins, oxygen and microorganisms break down remaining solids. The water then moves to secondary clarifying ponds where solids once again settle to the bottom. The final process is a state-of-the-art ultraviolet disinfection system, then the water moves to a “wet well” containment tank and is used for irrigation.

Treated wastewater samples are tested daily in an on-site lab to ensure that potentially harmful bacteria and pollutants are removed. Results are then sent to the New Mexico Environment Department for monitoring and reporting.

This 24-hour operation is entirely powered by a five-acre solar array power plant installed in



2011, which also results in considerable energy savings. Renewable energy credits realized from the solar array allowed the town to take advantage of a 20-year, fixed energy rate of 6.5 cents per kilowatt hour (kwh), a significant reduction from the 11 cents kwh paid previously.

Out of sight but not forgotten, Silver City Wastewater Treatment Plant employees work hard to keep this 24-hour system flowing smoothly. Pictured (left to right) Manny Orosco Sr., plant supervisor; Brandon Mendoza and Paul Dominguez, plant operators; and Chris Marrufo, laboratory technician.

The solar array sends some 1.3 megawatts into the power grid each day, yet the plant uses 700,000 kwh, resulting in an energy “profit” to the town, which helps offset costs to run and maintain the plant.

The wastewater system expanded this year when new sewer lines were installed off Ridge Road, allowing 165 homes to connect to the municipal wastewater treatment system, eliminating old, and sometimes failing, septic tanks. The project was funded by a grant from the state Office of Natural Resource Trustee, which funds groundwater protection projects. These funds allowed residents to connect to the system for free or minimal cost.

Sewer and water system improvement projects are generally paid for with federal grant programs or state colonias funding, managed by the New Mexico Finance Authority. The federal government defines colonias as any “identifiable community” which lacks basic services such as potable drinking water or adequate sewage. There are some 138 colonias in New Mexico and as many as 1,800 in Texas. Colonias expanded greatly in the early 1990s with the passage of the North American Free Trade Agreement, and the explosion of manufacturing along the US-Mexico border.

Requests for system improvements must be included in the town’s infrastructure capital improvement plan, which is reviewed and approved by town council members each year. Generally, water and sewer system improvements are rotated on an annual basis with road projects, in part due to grant funding timelines and also to take advantage of opportunities to coordinate road projects with the laying of new water and/or sewer lines.

Robert Esqueda, Silver City utilities director, has focused capital improvement requests on upgrading and modernizing equipment at the 40-year-old plant, built in 1978. “These improvements have improved the overall function and efficiency of the plant, he said, making it easier to run and maintain, which ultimately saves money for the consumer.”



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