



Penitencia Water Treatment Plant

About the Penitencia Water Treatment Plant

The 17-acre Penitencia facility opened in 1974 as the second of Valley Water's water treatment plants. Penitencia Water Treatment Plant treats and delivers up to 40 million gallons of water each day for the cities of San José and Milpitas and local water providers. One of the local water providers such as the San José Water Company.

Penitencia is the latest plant to integrate the use of ozone gas in its water treatment process to improve water quality.

Management and operations

The Penitencia Water Treatment Plant has a team of experienced professionals that includes certified operators, mechanics, industrial electricians, instrumentation and control technicians, plant maintenance supervisor, and water treatment operations supervisor.

The treatment plant operators manage the untreated water flowing into the plant and the treated water going out of the plant. They monitor and adjust treatment processes based on changing raw water quality and ensure that the drinking water treated at the plant meets and exceeds local, state, and federal standards. The state of California certified each of our operators, who must meet experience guidelines and pass an examination for each of the five levels of certification. Our operations supervisor maintains the highest level of certification. Valley Water invests in their training to ensure they can operate and manage our systems at the highest levels possible.

Together, this team ensures the safety of the plant and the quality of drinking water delivered to the community. They work hard to operate the facility efficiently and to treat waters of different characteristics to high-quality standards.

Penitencia's water sources

Santa Clara County relies on water imported from the Sierra Nevada watersheds, transported through aqueducts, canals and pipes, for a majority of its water supply. Penitencia receives the bulk of its water via the Sacramento-San Joaquin Delta and then the South Bay Aqueduct, which enters our county at its northern border. The facility can also receive imported water via the San Luis Reservoir, just south of our county line, which may be stored at Anderson Reservoir or another of our local reservoirs. These various sources provide operational flexibility, allowing the facility to keep receiving water supplies, even if a portion of the system is offline for maintenance. Having several water sources helps improve water reliability, gives us flexibility in operating our treatment plants, and ensures our ability to continue serving our community.

How is Your Water Treated?



Flocculation and Sedimentation Basins

Removing solids

At Penitencia, we remove the solid particles that settle to the bottom of three large tanks called sedimentation basins, the largest feature of the plant. Each basin is about 18 feet deep and holds 800,000 gallons of water. First, we add special chemicals called coagulants to the water that enters the basins. In this "Coagulation/Flocculation" phase, these chemicals allow the finer particles to clump together to form larger, heavier, settleable solids. Next, in

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the “Sedimentation” phase, we allow these settleable solids to sink to the bottom. Rakes slowly rotate along the bottom of the basins scraping the settled sludge towards the end of the basins where it is removed for further treatment. The water at the top of the tanks, with less solids, overflows to troughs located across the top of the basins. Next, this water is ozonated to disinfect and remove taste and odor from the water just before filtration.

Filtration Process

The Penitencia Plant can have up to six filters in service to remove particles that are small enough to be suspended in water. Each is capable of filtering 7 million gallons per day through a layer of sand and coal that is specialized for water filtration. Each filter takes up an area of 780 square feet. The filters are backwashed periodically to remove all the entrapped particles.



Ozonation Process

Final disinfection

Chlorine and ammonia is used for final disinfection. Chlorine is added right after filtration, and then ammonia is added just before the water leaves the plant to form chloramines, a long-lasting disinfectant for the distribution system. After treatment, water flows through the pipelines all across Santa Clara Valley. Your local water provider takes it from here and distributes the water to homes and businesses.

Testing ensures quality

Valley Water has strict quality control measures and follows all state and federal regulatory requirements. To ensure we deliver the highest quality water, in addition to the water treatment process, our water quality lab conducts a wide range of tests for constituents under strict quality control and regulatory requirements.



Washwater Recovery Ponds

More Information

For more information, visit valleywater.org/accordion/penitencia-water-treatment-plant or contact Public Information Representative Jose Villarreal at **(408) 630-2879** or by email at jvillarreal@valleywater.org.

Envíe un correo electrónico a Translations@valleywater.org si tiene preguntas sobre este documento.

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