

A RECIPE FOR ODOR CONTROL...

SEWERS

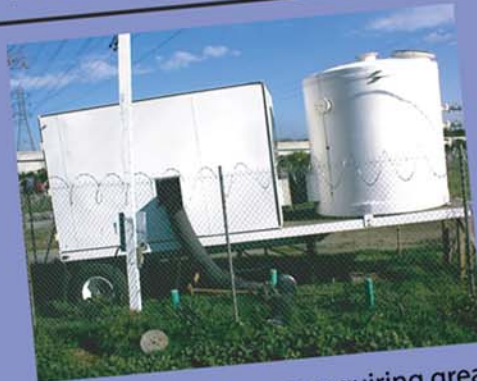
Treatment of off-gases



Activated carbon canisters (photo left) installed into manholes (photo right) cleanse the off-gases forced out of the sewers by changing wastewater levels.

SEWERS

Treatment of off-gases



In some larger sewers requiring greater treatment, the off-gases are evacuated and treated in trailer mounted mobile odor scrubber units containing an activated carbon filter (photo left) and a ventilation blower (photo right).

Chemical addition for H₂S control

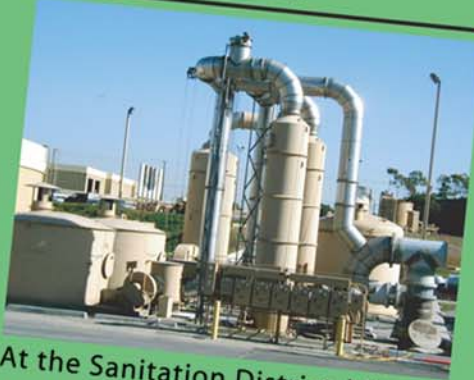
SEWERS



Permanent ferrous chloride injection stations (photo left) continuously inject chemicals into selected areas of the sewer system to control hydrogen sulfide gas (H₂S) generation. In some areas, caustic soda is injected directly into manholes from a truck (photo right).

Odor scrubbers

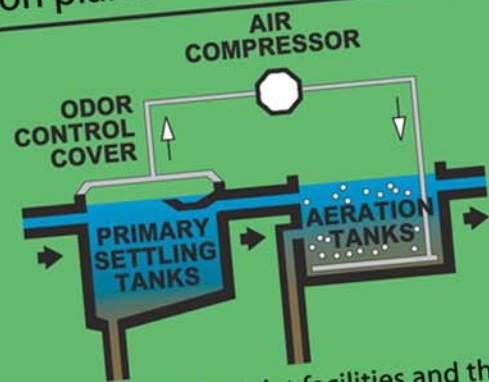
TREATMENT PLANTS



At the Sanitation Districts' JWPCP, air is evacuated from under covered process tanks and sent through chemical scrubbers (photo left) for the removal of H₂S, followed by activated carbon. Replacing chemical scrubbers with biotrickling filters (photo right) will save over \$400,000 per year in chemicals and labor.

TREATMENT PLANTS

Tank covers in water reclamation plants



In the Sanitation Districts' water reclamation plants, the inlet facilities and the primary treatment tanks, the most odorous parts of the process, are sealed with rubber gasketed flat covers (photo left). Ventilation blowers assist the process by drawing air from under the covers and bubbling it into the secondary treatment aeration tanks (photo right). The aeration tanks act as a natural biofilter to treat the odors.

COMMUNITY OUTREACH

Citizens Advisory Committee



The JWPCP Citizens Advisory Committee (pictured above) is one of the most important parts of the overall community outreach effort designed to help the Sanitation Districts be a better neighbor to the citizens surrounding the plant. The Committee acts as a sounding board to advise the Sanitation Districts on matters concerning its operations in the local community.

The scenario is common; the wastewater treatment facility was built many years ago on the outskirts of town with open space and farms as the only neighbors. Over the years, residential neighborhoods, commercial buildings, and major thoroughfares were built around the plant which is now faced with addressing the impacts of encroachment and ensuring a compatible environment that can only be attained with effective odor control.

The Sanitation Districts of Los Angeles County (Sanitation Districts) have developed a recipe for odor control with the ultimate goal of elimination of odors experienced by the 5 1/2 million people living, working, and commuting around the 1,300 miles of trunk sewers and the eleven wastewater treatment facilities handling approximately 530 million gallons of wastewater each day. This recipe is a mixture of three prime ingredients; odor control in the sewers, odor control in the treatment plants, and community outreach.

Odors begin in the collection system, usually in the form of hydrogen sulfide gas (H₂S). The Sanitation Districts have dealt with this through the injection of ferrous chloride and/or caustic soda to prevent or control the formation of H₂S. At some locations, the changing levels of wastewater in the sewers cause off-gases to escape through the manholes. Activated carbon canisters installed into the manholes treat the off-gases as they escape. In some sewers, the off-gases are withdrawn and treated in mobile odor scrubbers. The carbon canisters and mobile odor scrubbers are often precursors to permanent odor scrubbing stations. Existing stations withdraw the off-gases from the sewers and treat them in activated carbon filters. Future stations will use biotrickling filters followed by activated carbon.

The Sanitation Districts have historically covered the tanks in the more odorous portions of the treatment facilities. At the largest facility, the Joint Water Pollution Control Plant (JWPCP), beginning in the 1970s the air from these tanks was ventilated through wet chemical scrubbers for treatment. This process evolved with the addition of activated carbon after the wet chemical scrubber in the 1980s. At the start of the 21st century, the old-style covers were replaced with tightly sealing modern flat covers. A new centralized, two-stage (biotrickling filters followed by activated carbon) odor scrubber system is under construction to replace the many smaller scrubber stations.

Community outreach is an equally important ingredient in the recipe for odor control. If you form a common bond of trust and understanding with the facility neighbors through your outreach efforts, identifying areas of concern, such as odors, can be addressed in a cooperative fashion. The neighbors will be more patient as you work to address any potential impacts. The community relations program begins with the education of staff to understand how important the neighbors are to the process. It then continues with a 24-hour odor complaint telephone hotline, immediate response to complaints, newsletters, community meetings, plant tours, and most importantly, a citizens advisory committee. Community input acts as feedback to plant staff and researchers to guide ongoing and future efforts towards complete odor control.

In the past three years, the Sanitation Districts have spent approximately \$40 million on odor control at the JWPCP alone. The Sanitation Districts will continue to refine the recipe for odor control and adjust the ingredients until the ultimate goal is achieved.

... SERVING 5 1/2 MILLION PEOPLE