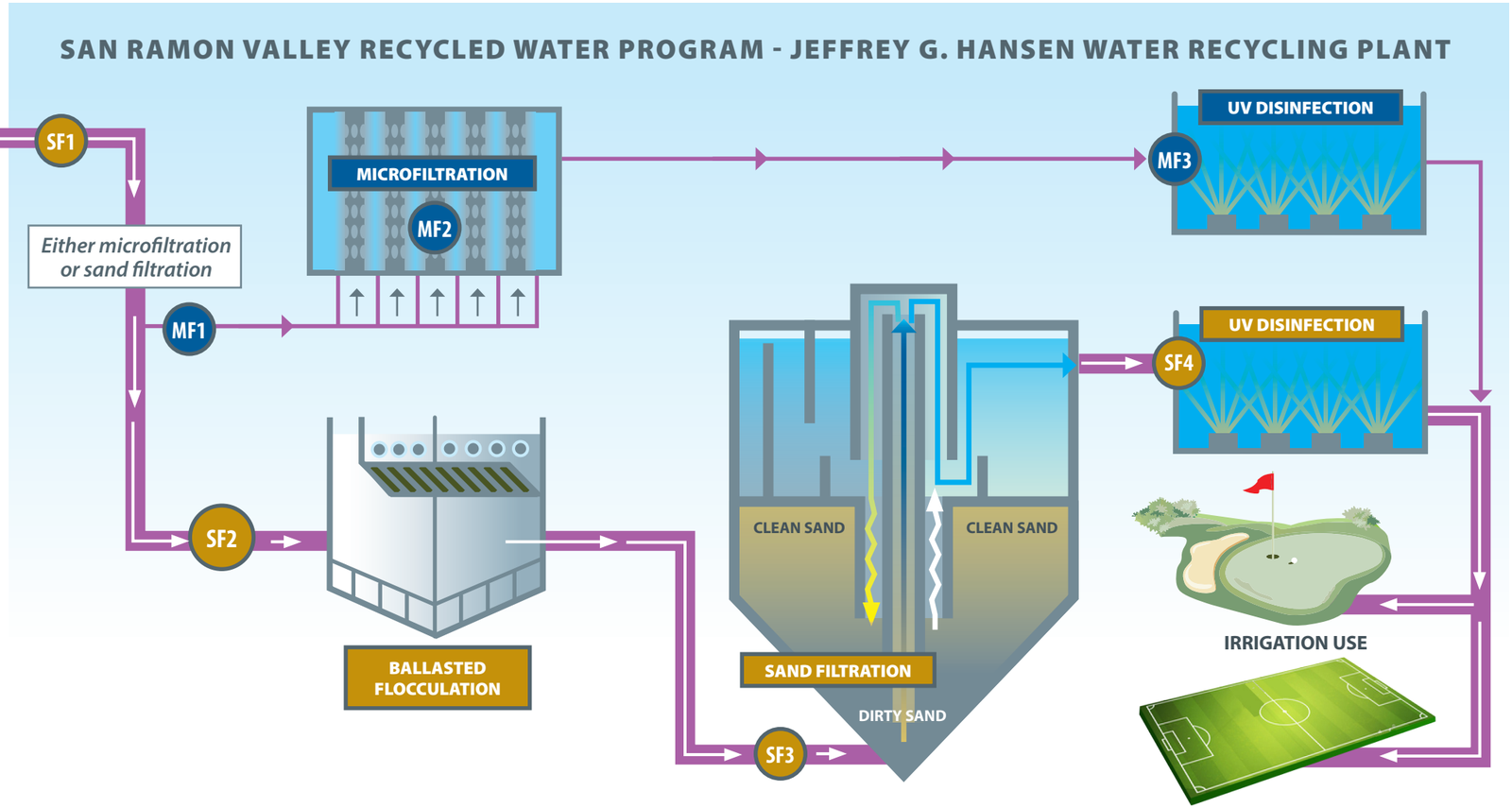


Understanding the Recycled Water Advanced Treatment Process

The Jeffrey G. Hansen Water Recycling Plant (WRP) is a joint effort by the Dublin San Ramon Services District (DSRSD) and the East Bay Municipal Utility District (EBMUD) to supply recycled water to irrigate schoolyards, parks, roadway medians, commercial and multi-family complexes, and golf courses in Dublin, San Ramon, Blackhawk, Danville, and their first customer, City of Pleasanton.

The WRP produces recycled water using two separate treatment processes depending on how much recycled water customers need (demand): sand filtration for high demand, microfiltration for low demand, and both systems when demand peaks (a string of very hot days). Facility operators adjust the quantity of recycled water they produce on a daily basis. All treatment includes continuous electronic monitoring and disinfection with ultraviolet (UV) light to ensure a safe water supply.

DSRSD's Regional Wastewater Treatment Facility is the source of water (secondary effluent) that is processed by the WRP. The facility can treat up to 17.0 million gallons of wastewater per day (average dry weather flow) and the WRP is permitted to produce up to 12.3 million gallons of recycled water per day (mgd). In the future, the plant may be permitted to produce up to 16.2 mgd.

Sand Filtration Treatment Process

Sand filtration, because of its lower cost and higher output, is used during high-demand periods (consecutive hot summer days). The sand filters can be operated at a flow of 2.0 to 12.3 million gallons per day (mgd).

Step 1 (SF1): Secondary effluent (cleaned wastewater that has completed primary and secondary treatment, removing up to 95% of suspended solids and meeting requirements for discharge to the Bay) enters the WRP.

Step 2 (SF2): Ballasted flocculation is a physical-chemical clarification process that fixes suspended solids onto ballast (sand) with the aid of a polymer to quickly settle out particles.

Step 3 (SF3): The water then passes through an 80-inch-deep continuous backwash sand filter system, which removes the remaining solids. The sand has a rounded shape and is ideal for filtering undesirable particles from the water. This process reduces the turbidity of the water to less than two nephelometric turbidity units (NTUs). Turbidity is a measure of water cloudiness, and a lower number of NTUs means clearer water. Drinking water in California cannot exceed one NTU, and recycled water for nonpotable uses (irrigation) cannot exceed two NTUs.

Step 4 (SF4): The filtered water slowly passes by ultraviolet lights, which kill or inactivate any bacteria and viruses that might remain in the water. Similar to the disinfecting power of sunlight, UV light destroys the DNA of pathogens.

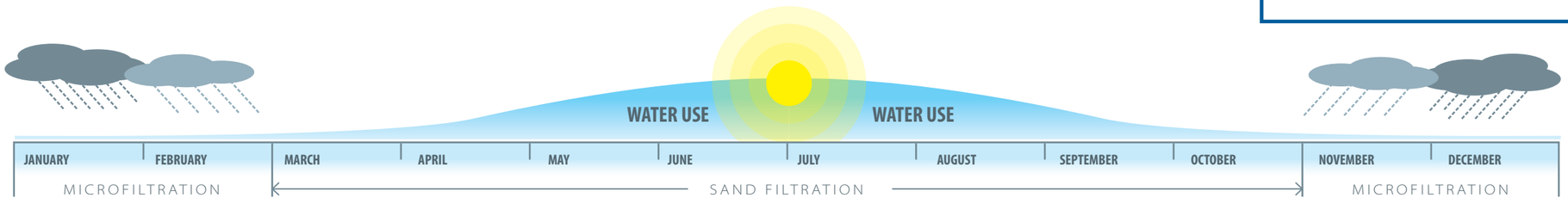
Microfiltration Treatment Process

Microfiltration, because of its higher cost and lower output, is used primarily as a backup to sand filtration and during the off-season. The microfiltration system can be operated at a flow of up to 2.4 mgd.

Step 1 (MF1): Secondary effluent (cleaned wastewater that has completed primary and secondary treatment, removing up to 95% of suspended solids and meeting requirements for discharge to the Bay) enters the WRP.

Step 2 (MF2): The water passes through a microporous membrane that removes particulates and contaminants. Pores in the membrane are 0.1 micrometers in size, more than 100 times smaller than the width of a human hair. Microfiltration can remove pathogens from water, including giardia, cryptosporidium, and any large bacteria.

Step 3 (MF3): The filtered water slowly passes by UV lights, which kill or inactivate any bacteria and viruses that might remain in the water. Similar to the disinfecting power of sunlight, UV light destroys the DNA of pathogens.



Dublin San Ramon Services District
Water, wastewater, recycled water

District Office
7051 Dublin Blvd., Dublin, CA 94568
(925) 828-0515

Recycled Water Treatment Facility
7399 Johnson Drive, Pleasanton, CA 94588
(925) 846-4565

Visit www.dsrsd.com for wastewater treatment facility tour schedules

Revised March 2020