Central Contra Costa Sanitary District (CCCSD) provides wastewater collection and treatment services for more than 448,000 residential and business customers throughout central Contra Costa County. Whenever they flush or pour down an inside drain comes to our treatment plant.

Each day, about 45 million gallons of wastewater flow by gravity to the treatment plant more than 1,500 miles of underground pipe in our sewer collection system. In hilly areas where gravity flow isn’t possible, 18 pumping stations throughout our service area lift sewage to the treatment plant through more than 1,500 miles of underground pipe.

The wastewater flows through bar screens where rags, trash, branches and other large debris are mechanically raked from the sewage. This debris is then ground up in mechanical grinders and returned to the treatment process.

The wastewater then enters primary sedimentation tanks (clarifiers). Material that floats (scum) is skimmed, thickened and later burned in the furnace. Material that settles to the bottom (sludge) is pumped to a centrifuge for further dewatering.

The screened wastewater is pumped to the pre-aeration tanks where sand and silt (grit) settle to the bottom of the tank and are pumped to the dewatering process.

The wastewater is then disinfected. About 10,000 UV light bulbs are submerged in channels to safely disinfect treated wastewater flowing through them. The UV light breaks down the DNA in the bacteria, destroying their ability to survive and reproduce. Most of the disinfected wastewater is then discharged into Suisun Bay. A portion is diverted to the water recycling facility.

In the secondary clarifiers, the bacteria (known as activated sludge) sink to the bottom of the tank. A portion of the bacteria is pumped to the dissolved air flotation thickeners and later to the furnace for incineration. The remaining portion is returned to the aeration tanks where bacteria again break down the organics. The water that comes off the top of the clarifier has more than 95% of the impurities removed.

The waste-heat boiler uses heat recovered from the furnace exhaust to produce steam. The steam is piped to a turbine which drives the blower to produce air for the aeration tanks.

The cogeneration facility uses natural gas and methane gas from the landfill to produce electricity and steam, providing 80% of the plant’s daily power needs.

Primary treated wastewater containing dissolved and suspended organic material is pumped to the aeration tanks. Here, secondary treatment occurs as bacteria biologically break down the organics into carbon dioxide and water.

The wastewater is then filtered and further disinfected before being used for landscape irrigation and other purposes.