Your Wastewater Services



The Story behind the *FLUSH!* Tapia Water Reclamation Facility



The Story behind the *FLUSH! . . . AS IT COOKS* Rancho Las Virgenes Composting Facility

LAS VIRGENES MUNICIPAL WATER DISTRICT

www.LVMWD.com
www.TriunfoSanitationDistrict.com

TRIUNFO SANITATION DISTRICT
A PUBLIC AGENCY

The Story Behind the FLUSH!
TAPIA WATER RECLAMATION FACILITY

Ever wonder what happens to water after you're done using it? Where does it go? How long does it take to get there? What happens to it?

If you answered no, you are not alone, as most of us take it for granted. You see the water swirl down the drain. But, what happens next?

It takes over 300 miles of sewer pipes to serve customers of Las Virgenes Municipal Water District (LVMWD) and Triunfo Sanitation District (TSD). LVMWD and TSD operate the Tapia Water Reclamation and Rancho Las Virgenes Composting Facilities as Joint Powers Authority. In some areas, garage-sized pumping assemblies called *lift stations* are needed to move the wastewater over hills or out of valleys before reaching the Tapia Water Reclamation Facility. Tapia is nestled in a geographic low spot in Malibu Canyon, which means most of the district's wastewater flows naturally downhill to reach the facility.

Depending on where you live, it takes your wastewater 1 to 4 hours to reach Tapia. Along the way, materials slowly begin to degrade. Materials like grease and oil from food products will not degrade and can build up within the sewer lines. Objects illegally dumped down manholes are prime candidates for capturing grease and starting a blockage — just one of the problems maintenance crews routinely check for.

Finally, the wastewater, now called **influent**, arrives at Tapia for treatment. What happens as it is transformed into highly treated, safe, recycled water for irrigation? Let's follow the flow, step by step.

1 All influent first enters the **headworks** where your coffee grounds, eggshells, the 2x4 illegally stuffed down a manhole, and those missing socks of yours will be removed.

2 The flow next enters a huge tank for **primary sedimentation**. Solids are allowed to settle to the bottom and oil and grease float to the top. Solids are skimmed away and pumped four miles up the road to the Rancho Las Virgenes Composting Facility.

3 The remaining flow (now 99.9% water) goes to **aeration tanks**, where air is pumped in and microorganisms are added. These microscopic animals are the "workhorses" of the treatment process, as they digest and neutralize the remaining solids.

4 The flow moves on to the **secondary sedimentation** tank where the microorganisms settle out, are captured and recycled to treat another batch of wastewater.

5 The partially treated wastewater now undergoes filtration, the **tertiary** or third treatment process.

6 Moving at a snail's pace, the flow enters the **chlorine contact channel** for disinfection.

7 Now the recycled water is ready for reuse or discharge. If discharged, the chlorine is removed.

From beginning to end, this process takes approximately 20 hours.

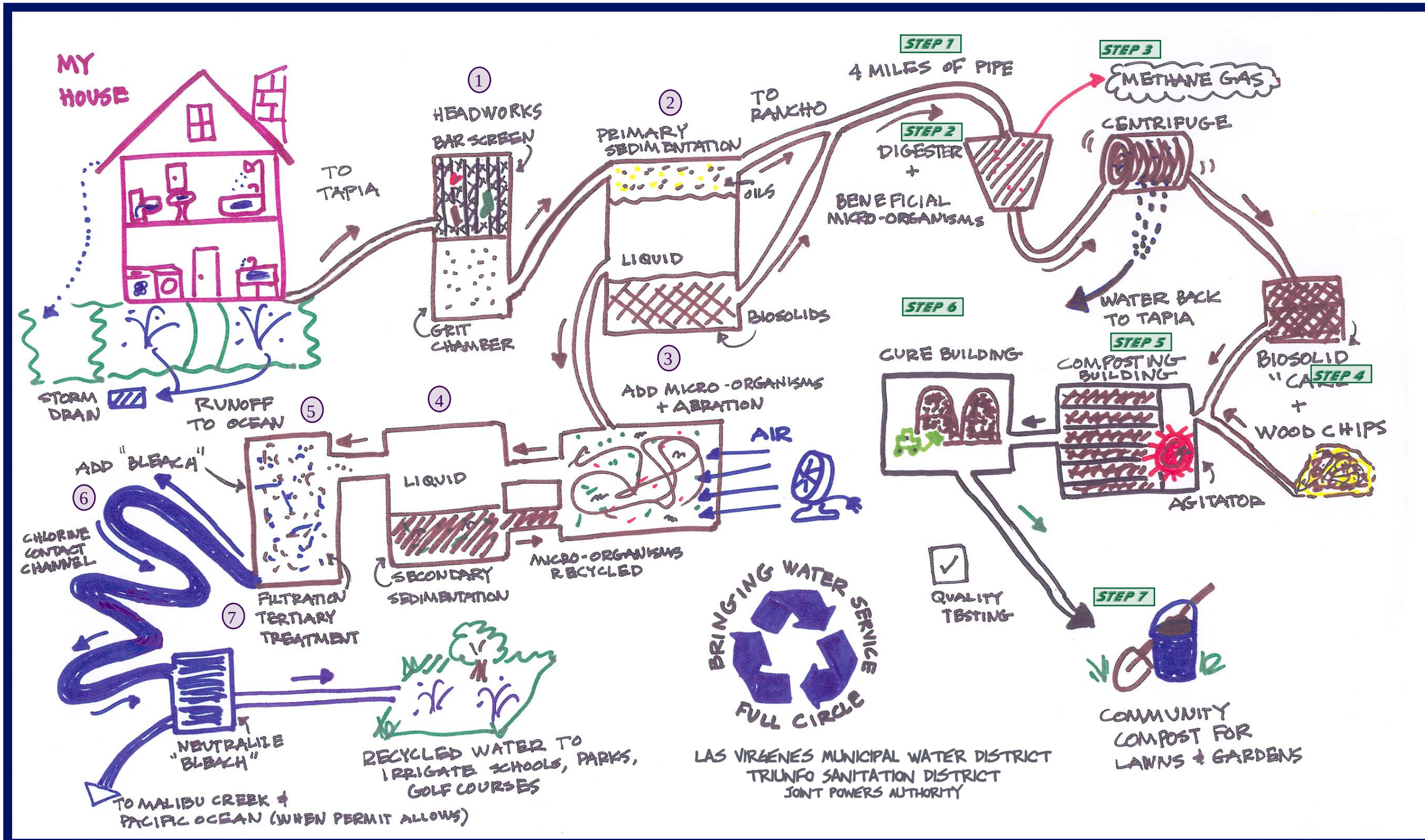
Tapia, as a "tertiary" treatment plant, processes your wastewater in these steps until it passes all state and federal regulations for irrigation and recreation reuse as recycled water.

Tapia has been honored with numerous awards for the excellence of its treatment process and operations. Of the 15,000 treatment facilities in the United States that process over 5 million gallons of water daily, less than 3% have effluent filtration, the tertiary step. As one of these facilities currently capable of producing such high quality recycled water, Tapia is fulfilling an important environmental goal of maximizing reuse of limited water resources in our communities.

And that's the story of what happens to water after it runs down the drains in your home to the district's pipeline!



Aeration tanks


MY HOUSE
TO TAPIA
STORM DRAIN
RUNOFF TO OCEAN
1
HEADWORKS
BAR SCREEN
GRIT CHAMBER
2
PRIMARY SEDIMENTATION
OILS
LIQUID
BIOSOLIDS
TO RANCHO
STEP 1
4 MILES OF PIPE
STEP 2
DIGESTER
+
BENEFICIAL MICRO-ORGANISMS
STEP 3
METHANE GAS
CENTRIFUGE
WATER BACK TO TAPIA
STEP 4
BIOSOLID "CAKE"
+
WOOD CHIPS
STEP 5
COMPOSTING BUILDING
AGITATOR
STEP 6
CURE BUILDING
3
ADD MICRO-ORGANISMS + ABRATION
AIR
4
LIQUID
MICRO-ORGANISMS RECYCLED
SECONDARY SEDIMENTATION
5
ADD "BLEACH"
FILTRATION TERTIARY TREATMENT
6
CHLORINE CONTACT CHANNEL
7
NEUTRALIZE "BLEACH"
TO MALIBU CREEK & PACIFIC OCEAN (WHEN PERMIT ALLOWS)
RECYCLED WATER TO IRRIGATE SCHOOLS, PARKS, GOLF COURSES
QUALITY TESTING
STEP 7
COMMUNITY COMPOST FOR LAWNS & GARDENS
BRINGING WATER SERVICE FULL CIRCLE
LAS VIRGENES MUNICIPAL WATER DISTRICT
TRIUNFO SANITATION DISTRICT
JOINT POWERS AUTHORITY

The Story Behind the *FLUSH! . . . AS IT COOKS*
RANCHO LAS VIRGENES COMPOSTING FACILITY

FEW people give a thought to what happens after water disappears down the drain. It's messy stuff and we'd as soon believe it simply "goes away."

However, LVMWD and TSD pay *a lot* of attention to what happens to customers' wastewater. It's our responsibility to gather, treat, and dispose of the waste contributions of more than 80,000 local residents. Read on for the behind-the-scenes story of how we transform wastewater and solids from your home or business into a beneficial compost product.

Wastewater treatment begins at the Tapia Water Reclamation Facility, where the solids and liquid are separated. The 99 percent that is liquid goes on to be treated, filtered, and disinfected, to produce highly treated recycled water used for irrigation in our naturally arid region.

WHAT about the remaining 1 percent???

It's a combination of human and food waste, called "biosolids", and can be handled in different ways. In our area, it is composted.

STEP 1: Every day, 70,000 gallons of biosolids are pumped from Tapia, through underground pipelines, to holding tanks at Rancho Las Virgenes Composting Facility located 4 miles away.

STEP 2: Next, the solids are slowly fed into one of two immense **digestion tanks** that can each hold 1 million gallons. Working like huge slow-cooking crock-pots, the digesters contain beneficial anaerobic (without oxygen) microorganisms that break down the biosolids, neutralize them, and reduce their volume. During "digestion", methane gas is produced and harnessed on-site to maintain digesters at the optimum temperature of 96° F. These cells produce enough supplemental electricity to help heat the digesters and support other electric needs throughout the facility. After about 25 days in the digester, the biosolids are ready to move on.

STEP 3: The digested biosolids next move into a **centrifuge** and polymers are added to help thicken the mix. Similar to a salad spinner or the spin cycle of a clothes washer, the spinning action (centrifugal force) separates the remaining liquids from the solids, to **de-water** them. The extracted liquid is sent back to Tapia for reprocessing (talk about recycling everything!). The remaining solids have a dense, moist, "cake" consistency.

STEP 4: The **biosolids cake** is now mixed with an **amendment** of wood chips or sawdust to give a lighter texture and make it easier for air to flow through the mixture. A small amount of completed compost is added to provide a "seed" or "starter" source of the beneficial aerobic (oxygen loving) microorganisms needed to perform the composting process. Rancho's plant operators put together a precise "recipe" of all these elements, to ensure just the right mixture for current conditions.

STEP 5: The mixture next enters the **in-vessel composting process**. There, the biosolids/amendment mixture is heated by the natural process of composting. Using huge **agitators** that look like paddle wheels, the material is regularly mixed to keep the temperature even throughout and to introduce air, which is necessary for the beneficial microorganisms to do their work. It takes about 18 days for the mixture to gradually move from one end of the building to the other and finish this stage of composting.

STEP 6: The nearly finished material is next transferred to a huge building to **cure.** Here, the compost is stored in large piles where it continues processing for 15 to 30 days. Tests are conducted to ensure that standards set by the US Environmental Protection Agency have been met.

STEP 7: Finally, the compost is ready for use on landscapes and gardens as a top mulch or soil amendment. From beginning to end, the process takes approximately 90 days.

In this way, Rancho Las Virgenes provides a sustainable, self-sufficient, and environmentally sensitive way to dispose of biosolids collected from homes and businesses. The composting process at Rancho Las Virgenes transforms undesirable waste into a beneficial garden soil amendment. Rancho's compost has been used at the Getty Museum, Palm Springs golf courses, and other locations throughout California.



Cure Building



Community Compost

. . . a nutrient rich soil amendment made with recycled organic biosolids

Come and Get It!

When:

Every Saturday, 8 am to 1 pm

How:

Bring containers or strong plastic bags to transport your compost home. Shovels are provided, but you will be responsible for filling your own containers.

Where:

Rancho Las Virgenes Composting Facility
3700 Las Virgenes Road
Calabasas, CA 91302

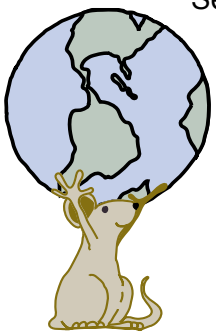
Need more than a container of compost? Call 818.251.2200 for more information!



FREE

See How It All Works

Are you interested in seeing how your wastewater treatment facility works? Join us for a "behind the scenes". The program runs from 8:45 A.M. to 1 P.M., including refreshments and a light lunch.



See how water is recycled and how we produce community compost. Come discover why these functions are so important to this sensitive natural environment.

Space is limited! Guests must be at least 12 years old and if under 18, accompanied by an adult. Participants should expect moderate walking and stairs during the tour.

Check our web sit at www.LVMWD.com for tour dates and to register.

See A World Class Example Right in Your Back Yard!