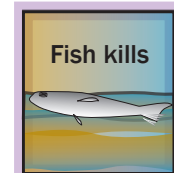


Wastewater from many sources disappears down our drains.

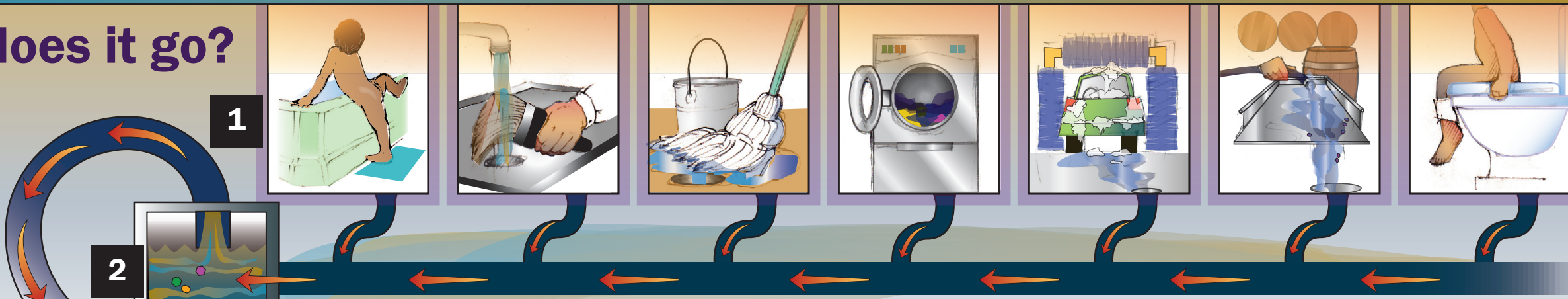
Where does it go?

Where did it go before NSD?

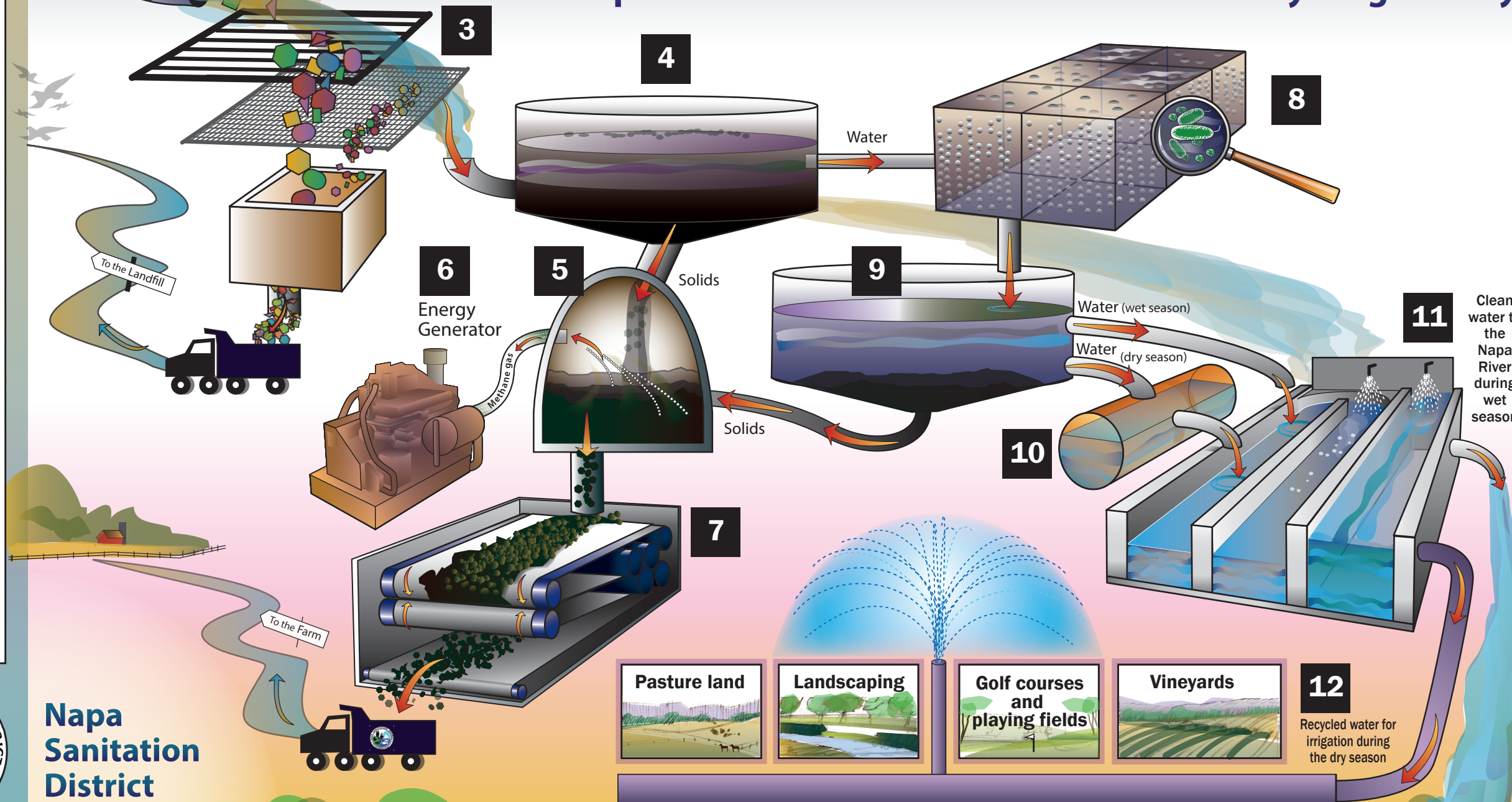


1945: Residents vote to create our sanitation district

Now: Clean water and a healthy community



Napa Sanitation District's Soscol Water Recycling Facility



How it works:

See the back side of this poster for more information on each of these steps:

- 1 Sewer collection system
- 2 Lift stations
- 3 Screening/Grit removal
- 4 Primary clarifier
- 5 Digester
- 6 Energy Generator
- 7 Solids dewatering
- 8 Aeration basins
- 9 Secondary clarifier
- 10 Sand filters (dry season)
- 11 Disinfection
- 12 Recycled water for irrigation

Napa Sanitation District



12 Recycled water for irrigation during the dry season

Here's how it works:

- **1 Sewer collection system:** 270 miles of underground sewer mainlines carry wastewater from homes and businesses in the City of Napa to the Soscol Water Recycling Facility, Napa Sanitary District's wastewater treatment plant.
- **2 Lift stations:** Sewage flows by gravity to the treatment plant. When pipes get too deep in the ground, a lift station pumps the flow back to pipes at the ground surface level so that gravity can continue the work.
- **3 Screening and Grit removal:** Large debris like sticks, rocks, rags, etc. are removed from the wastewater to protect equipment in the treatment plant. Smaller material like sand and egg shells can also damage equipment, so it is removed too. The large debris removed by screening and the grit are sent to the landfill – the only things NOT recycled at the Soscol Water Recycling Facility.
- **4 Primary clarifier:** When the wastewater sits in this tank, lighter materials float (scum) and heavier materials sink (sludge). Rotating arms in the clarifier remove these solids and they are pumped to the digester for treatment.
- **5 Digester:** The digester is like a giant stomach. Solids are pumped into the digester, then bacteria inside break down and digest the solids. The resulting material is called biosolids. Since biosolids are rich in plant nutrients, they can be used as a soil conditioner.
- **6 Energy Generator:** Methane gas, a bi-product of the digestion process, is captured and used to run an electrical generator. This allows the District to generate 30-50% of the energy needed to run the wastewater treatment plant.
- **7 Solids dewatering:** Even though they're called biosolids, this material is still about 95% water. The biosolids are blended with polymers to thicken them, and then fed through belt presses to remove more water.
- **8 Aeration basins:** In these basins, water from the primary clarifiers is mixed with micro-organisms that eat the waste dissolved in the water. These "bugs" need lots of oxygen to do their work, so air is bubbled through the basins. As the wastewater flows through, the bugs eat, reproduce, and clean the water.
- **9 Secondary clarifier:** Water from the aeration basins enters the secondary clarifiers, where solids are again removed in the same way as in the primary clarifiers. Water leaving the secondary clarifiers is virtually clear.
- **10 Sand filters:** Recycled water is sent through sand filters as a polishing step, to remove any fine particles remaining. (During the wet season, this step is skipped.) After this the recycled water goes to the contact basins for disinfection.
- **11 Disinfection:** Water from the secondary clarifiers is sent to the chlorine contact basins for disinfection. Strong chlorine is added to the water to kill any remaining pathogens.
- **12 Recycled water:** Recycled water is used to irrigate landscaping, pastureland, golf courses, playing fields and vineyards. Drinking water and groundwater are conserved when recycled water is used for these purposes.

Wastewater treatment is often a hidden service... Where does it all go?



Photo by Therese Fisher, Napa Sanitation District Volunteer

Napa Sanitation District: We make clean water happen.

Underground pipes carry wastewater to a treatment plant whose location and operation are often a mystery to most people.

At the Napa Sanitation District, we're excited to share the story of wastewater treatment, how we produce recycled water and how we protect water quality in the Napa River and the Bay. We believe that understanding wastewater treatment is essential to appreciating the public health and environmental protection benefits that are inherent in the way we do business.

The Napa Sanitation District (NSD) provides wastewater collection, treatment and disposal services to over 80,000 customers in a 23 square mile area that comprises the City of Napa and surrounding unincorporated areas.

The District's Soscol Water Recycling Facility treats an average of 10 million gallons per day (MGD) of wastewater, and produces recycled water for irrigation and biosolids that are used as fertilizer.

Soscol Water Recycling Facility at a Glance:

Dry Weather Treatment Capacity: 15.4 million gallons per day (mgd)
Recycled Water Produced: 740 million gallons annually
Biosolids produced: 11,320 dry tons annually
Methane gas produced: 115,200 cubic feet daily
Energy produced: 1,377 MWH annually (30-50% of energy used by the wastewater treatment plant)
Hours of operation: 24 hours/day, 365 days/year (Wastewater never sleeps!)



We're here to help you learn more about how wastewater treatment protects you and the environment. Whether you're a student, teacher, member of an organization or simply a curious person, we offer a program that can engage and inform you on the topic of wastewater treatment and water recycling.

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