

Hey kids, I bet your folks wouldn't let you leave home this dirty! But, this is how I leave your house every day! I am the wastewater that goes down drains all over Greeley. From homes, schools, restaurants, businesses and factories wastewater flows through underground pipes to the Wastewater Treatment Plant. Here wastewater must take a bath before it can go back into the river.



Let's take a close look at Greeley's Wastewater Treatment Plant, a very important part of our city



You can help make wastewater treatment easier by watching what goes down your drains at home!

Use and dispose of household chemicals safely. Wastewater treatment plants are not designed to handle hazardous wastes. Some wastes are very flammable or explosive and dangerous to workers. Some wastes are toxic and threaten microorganism populations and water safety. Removal of hazardous materials also greatly increases the costs of water treatment. Household products that should not be put down your drain include: oil based paint and varnish, solvents, motor oil (and many automotive products), pesticides, ammonia, oven cleaners, and battery acid. Buy only what you need of these products, follow directions and use them up completely (or find someone who can). Any wastes should be taken to a Hazardous Waste Collection Site, as landfill disposal is unsafe as well. For information please keep this number available: **353-0586 x2294 Weld County Household Hazardous Waste Hotline.**

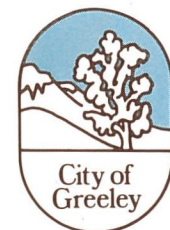
Use water wisely. The less you use, the less that needs to be cleaned! Look for areas in your home where less water can be used.

- Don't let the water run needlessly while brushing your teeth, shaving, getting a drink, washing, etc.
- Fix leaks promptly, check pipes, toilet and faucets.
- When shopping for new appliances, look for those with water-saving settings.
- Installing a low-water-use toilet can reduce indoor usage 20-30%.
- Take quick showers. Consider installing a low flow shower head or an inexpensive shut-off valve. Many new high-performance shower heads give an invigorating spray using 75% less water.

City of Greeley's

Water Pollution Control Facility

a description of our wastewater treatment process



Protecting your health and the health of our natural waterways.

For your information please call (970) 350-9360.

It takes many specialized workers to make sure this important job gets done right. Let's meet some of them...

The **PLANT MANAGER** ensures that the plant has enough money, trained workers and equipment to run smoothly.



The **LABORATORY WORKERS** test the treated wastewater and sludge. The results are reported to the state and the EPA.



The **MAINTENANCE PERSONNEL** make sure all the machines and equipment are mechanically sound.



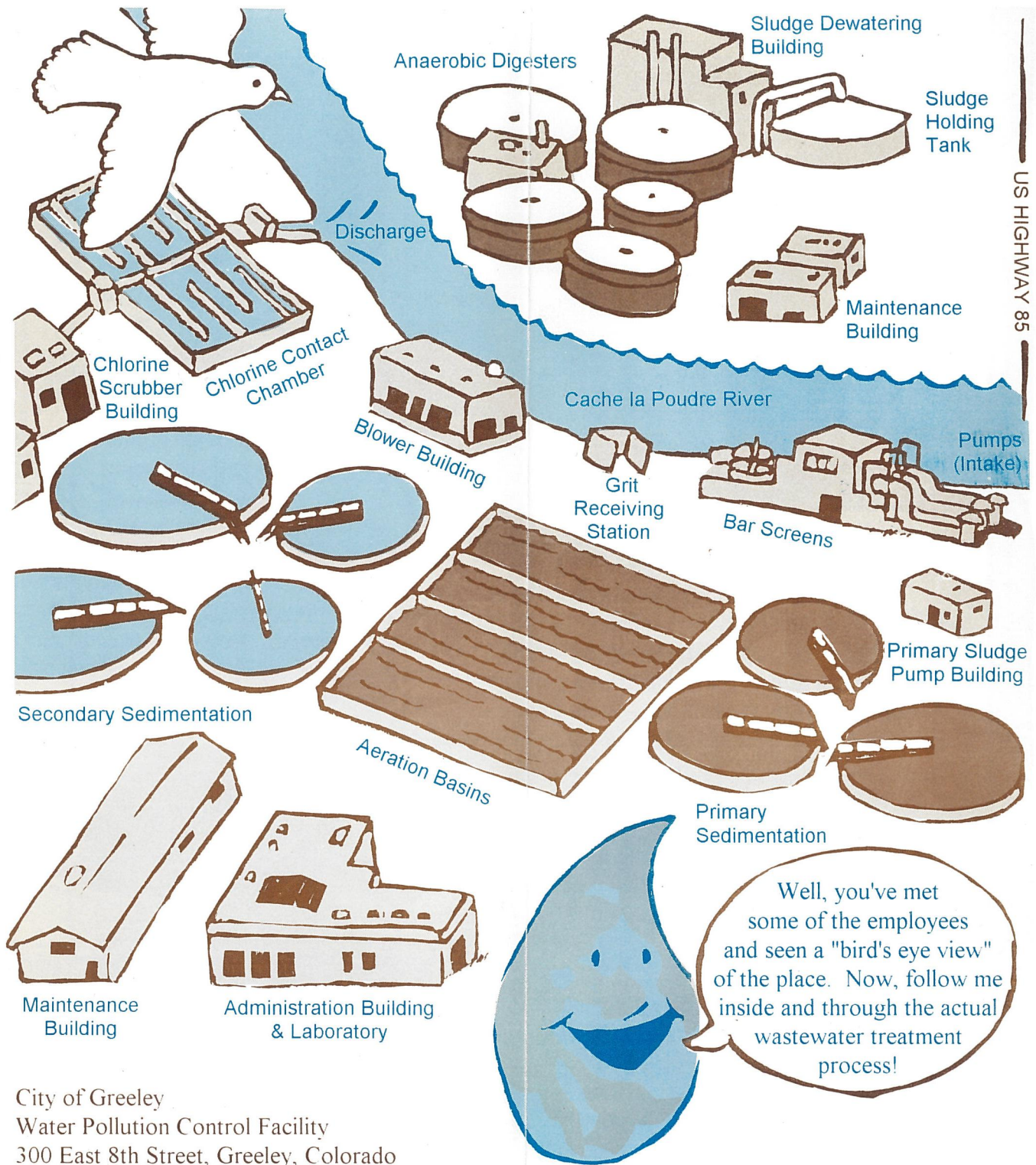
The **PLANT OPERATORS** must know every step of wastewater treatment. They make sure the treatment process is working.



The **INDUSTRIAL PRETREATMENT** personnel work outside the plant. They make sure industrial and commercial wastewater is safe and within EPA guidelines.

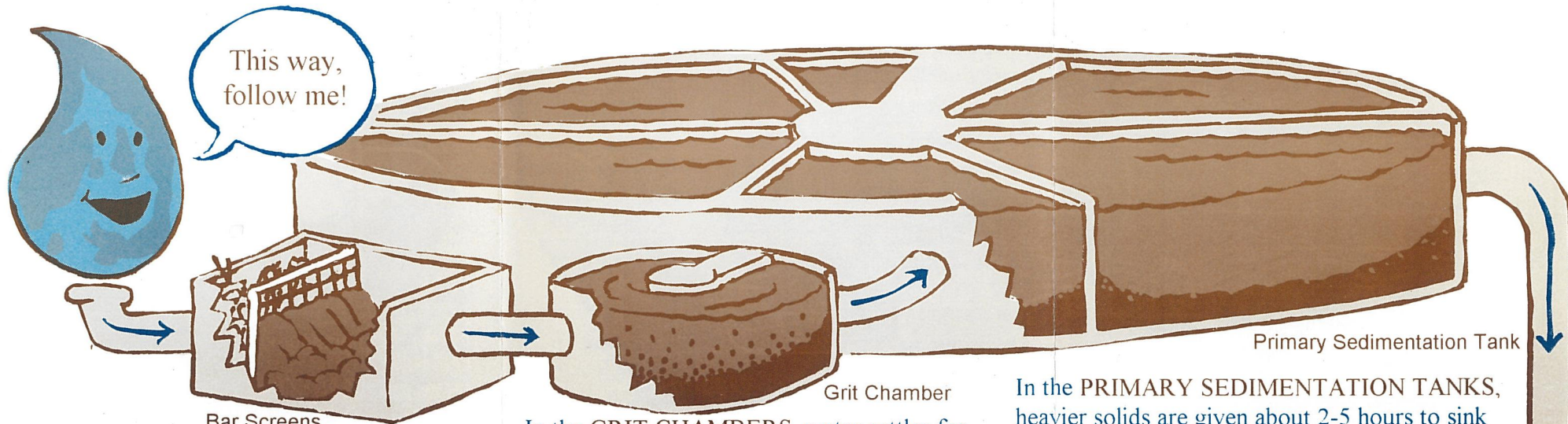


Perhaps you will want to work at a Wastewater Treatment Plant when you grow up...



Well, you've met some of the employees and seen a "bird's eye view" of the place. Now, follow me inside and through the actual wastewater treatment process!

City of Greeley
Water Pollution Control Facility
300 East 8th Street, Greeley, Colorado



Bar Screens

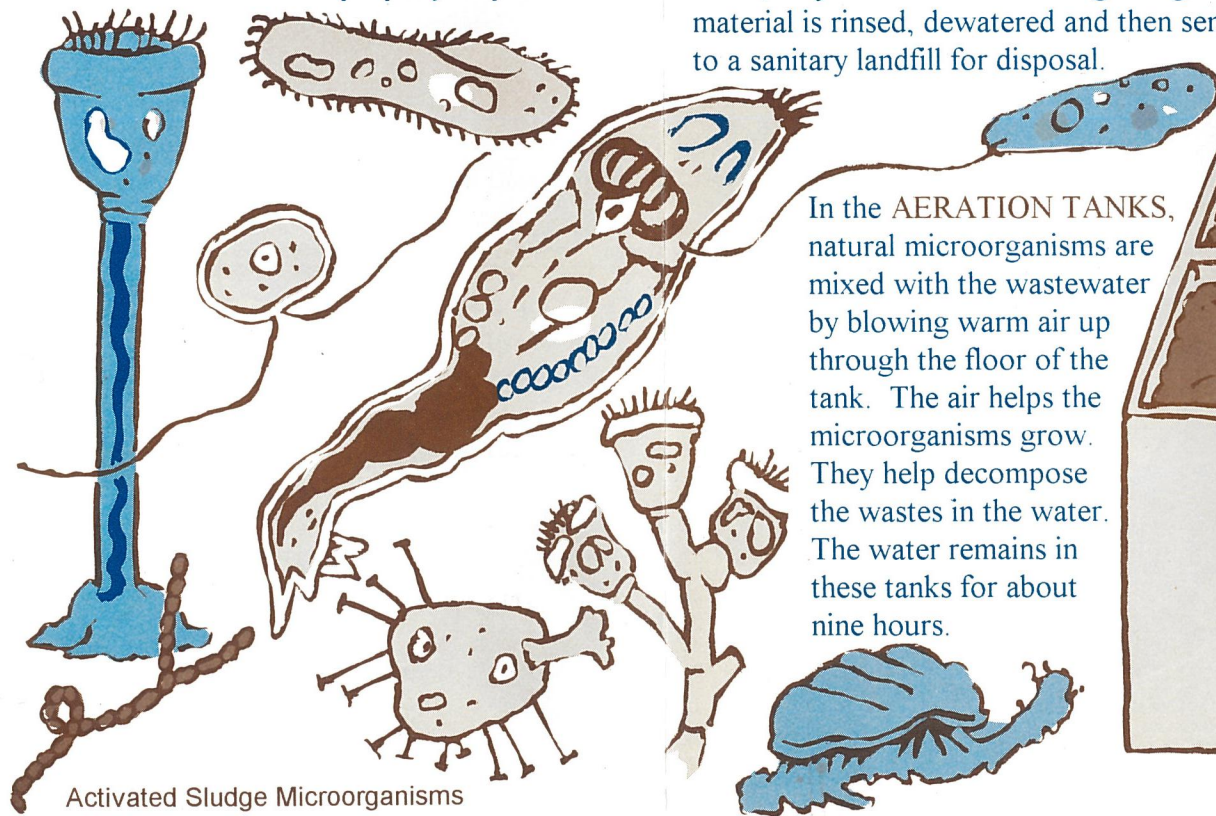
Grit Chamber

Primary Sedimentation Tank

BAR SCREENS let water through but catch the trash (such as rags, sticks or plastic containers). The trash is collected and properly disposed of.

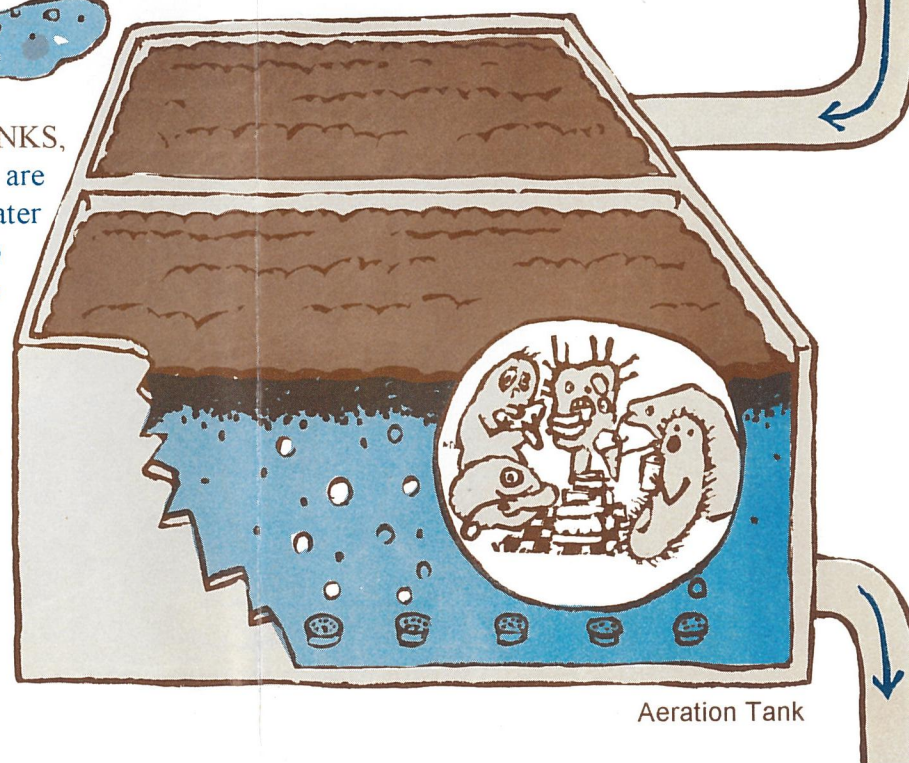
In the GRIT CHAMBERS, water settles for 15-20 minutes, allowing heavy particles like sand and small stones to sink to the bottom. Later, they are removed. All rag and grit material is rinsed, dewatered and then sent to a sanitary landfill for disposal.

In the PRIMARY SEDIMENTATION TANKS, heavier solids are given about 2-5 hours to sink to the bottom. These solids, called "primary sludge," are collected and sent to a sludge digester for further treatment. Any grease or other scum that is floating on the water's surface is removed here also.



Activated Sludge Microorganisms

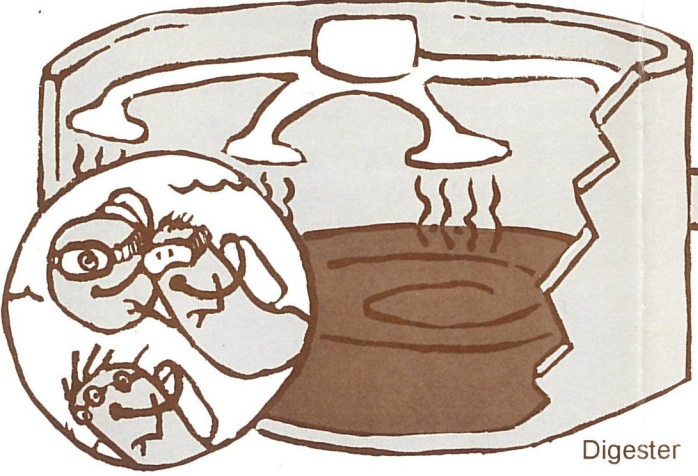
In the AERATION TANKS, natural microorganisms are mixed with the wastewater by blowing warm air up through the floor of the tank. The air helps the microorganisms grow. They help decompose the wastes in the water. The water remains in these tanks for about nine hours.



Aeration Tank

Treated **SLUDGE** (i.e. "biosolids") is a very beneficial, reusable by-product of wastewater treatment.

Both the "primary sludge" and "activated sludge" are used, but must first be treated and **THICKENED** by a centrifuge to which polymer is added.

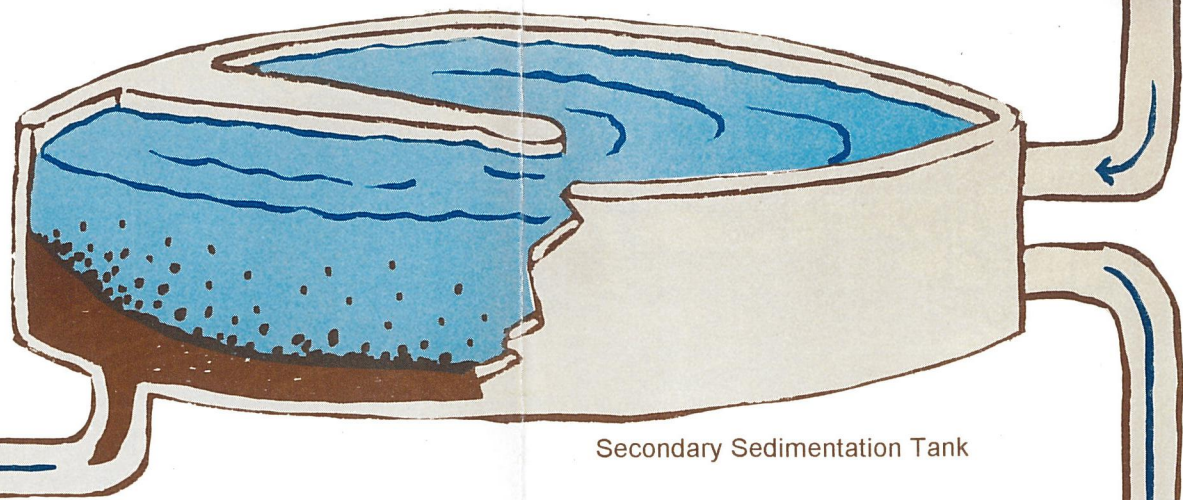


Digester

Treatment of the sludge occurs in tanks called **DIGESTERS**. Here, the sludge is broken down by **ANAEROBIC BACTERIA** into simpler and more stable compounds. This is called **STABILIZATION**. Stabilized sludge has an earthy smell and is free of disease-causing organisms. **METHANE GAS** is a by-product of this process and is the fuel used to heat the digesters. A centrifuge is used to dewater the sludge mixture prior to land application.



Processed sludge contains many nutrients and is a very good fertilizer. It is used by farmers.



Secondary Sedimentation Tank

In the **SECONDARY SEDIMENTATION TANKS**, the wastes and bacteria settle to the bottom. Some of this "activated sludge" is sent to the sludge digesters for treatment. The rest is reused in the aeration tanks for maintaining the population of microorganisms in the tanks. The water remains in these tank for about two hours.

Disinfection with **CHLORINE** gas kills disease-causing organisms and dechlorination with **SULFUR DIOXIDE** gas make up the final stage of treatment. The water is then released into the Cache la Poudre River.



Wow!
It sure feels
great to be
clean!

Chlorine Contact Chamber

Cache la Poudre River