OUR FACILITY — A VALUABLE COMMUNITY RESOURCE

Here at the City of Santa Cruz Wastewater Treatment Facility we have taken wastewater treatment seriously every day of the year since 1928. Early treatment consisted of a screening pumping plant. Primary treatment was provided in 1965. A major modernization of the facility to provide advanced primary treatment and secondary biological treatment was completed in 1998. The facility is now designed to provide a high level of treatment for up to 17 million gallons per day (MGD) during dry weather flows, and to provide wet weather treatment for up to 81 MGD. The facility provides state-of-the-art wastewater treatment for the City of Santa Cruz and for Capitola, Live Oak, Soquel, Aptos and UCSC. With a replacement value of over \$100 million, this facility is one of the community's most valuable assets.

TECHNOLOGY KEEPS OUR ENVIRONMENT HEALTHY

Sewage treatment is an extremely complex and expensive operation but is vital for the health and well being of the community. Sewage, which is made up almost totally of water, is carried through a network of underground pipes and pumps throughout northern Santa Cruz County to our treatment facility. The aim of sewage treatment is to remove all pollutants and produce an effluent that is as close as possible to fresh water, that can be reused or returned to the environment. This highly treated effluent, that meets all US Environmental Protection Agency standards, flows by gravity from our facility through an ocean outfall line 110 feet below sea level, and is discharged one mile off shore. In 1999 the City of Santa

Cruz replaced the chlorination and dechlorination treatment systems with an ultraviolet (UV) light disinfection system, that eliminated the use of hazardous chemicals in the disinfection process and made our community safer. The City's state of the art treatment process

contributes to maintaining the high quality and environmental health of the Monterey Bay National Marine Sanctuary.

On an average day our facility receives and treats 10 million gallons of wastewater – enough to fill

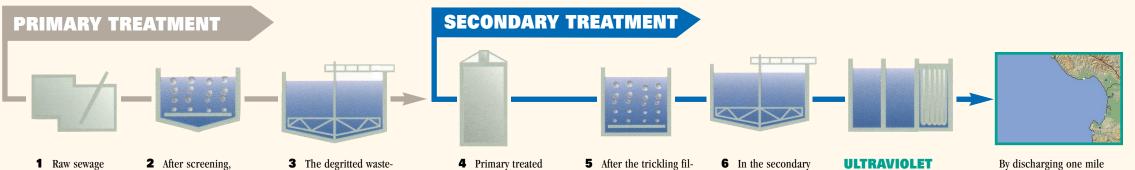
a swimming pool the size of a football field to a depth of almost 50 feet! Think you are not involved with wastewater? Guess again! You and every other person in the City and north county produces about 100 gallons of wastewater every day, from toilets, showers, washing

machines and other domestic sources. In addition, millions of gallons of wastewater are produced by businesses each day.

PROUDLY SERVING OUR COMMUNITY

Talking about environmental

protection is good, but doing something about protecting the environment is even better. At the Santa Cruz Wastewater Treatment Facility we believe that protecting the environment for future generations requires a concerted effort on many fronts. Motivated by a strong environmental ethic, dedicated staff throughout our organization lead the way in environmental action based on the latest scientific research and accomplished with appropriate uses of technology. The Santa Cruz Wastewater Treatment Facility is ready to serve the needs of the community well into the 21st century.



- comes into the plant from three City lines and from a forced main from the county. The raw sewage then passes through mechanically operated bar screens, which remove debris that is large enough to cause problems with downstream equipment.
- the City of Santa Cruz water is then sent to wastewater is lifted by primary settling tanks. up to six centrifugal These tanks slow the pumps and mixes with wastewater down to the county wastewater. allow dense solids to The combined wastesettle and lighter solids water then passes to float. These solids through aerated grit are removed from the chambers where air is tanks and pumped for added to create a further treatment. rolling action. The rolling action allows the heavy grit to settle. Grit includes rocks, coffee grounds and other large size

organic or inorganic

substances.

- 4 Primary treated wastewater is pumped to a maximum of six trickling filters where it is distributed evenly over plastic media. The media supplies a surface for bacteria to grow and consume the organic material in the primary effluent.
- **5** After the trickling filters, the wastewater gravity feeds to solids contact tanks. Air is introduced to allow for *flocculation* of particles and for a minor amount of secondary treatment to occur. Flocculation converts the organic solids into heavier clumps that settle more easily. Secondary clarifiers can then remove these clumps downstream.
- 6 In the secondary clarifiers, the water is slowed so that the heavier solids can settle out. The majority of the settled solids are returned to the aeration basin for reuse in the biological process. The excess solids are sent for thickening and further treatment.

ULTRAVIOLET DISINFECTION SYSTEM

7 During the disinfection process, the secondary effluent is passed through ultraviolet lights to kill harmful bacteria. The final effluent flows by gravity through our 12,250-foot long outfall line.

By discharging one mile off shore through a diffuser that is 110 feet below the ocean surface, Santa Cruz beaches remain clean and safe.

SOLIDS HANDLING



The solids are then used as soil amendment for nonfood crops in the Central Valley, composting, and/or top cover for valley landfills.



11 The stabilized solids are sent to be dewatered by centrifuges. We generate approximately 220 wet tons of solids per week.



ate up to 1.3 megawatts of electricity for use at the facility. This equates to approximatly 10 million KWH per year. Excess heat is used to warm digesters and buildings.

9 The thickened solids are sent to the anaerobic digesters for stabilization of the biodegradable portion of the solids. As a by-product of this stabilization, methane gas is produced, which is used with natural gas to co-generate electricity for use in the plant.

8 Excess solids from the secondary and primary processes are thickened in preparation to be sent to the anaerobic digesters.



TREATMENT

The plant normally treats about 10 million gallons per day (MGD) during dry weather. During the wet weather season we can receive significantly more flow. We can treat up to 81 MGD.

