
RUSSIAN RIVER COUNTY SANITATION DISTRICT

## Service Area

**The RRCSD service area** covers approximately 2,700 acres and includes the unincorporated areas of Rio Nido, Guerneville, Guernewood Park, and Vacation Beach. The RRCSD treatment plant provides service to approximately 3,300 parcels using a gravity collection system and treats wastewater from approximately 3,200 equivalent single-family dwellings.

The treatment plant cleans the community's wastewater to tertiary recycled-water standards (also referred to as *advanced water treatment*), which is the highest level of treatment defined by the State of California (referred to as Title 22). This level of treatment allows for unrestricted reuse in virtually all recycled-water applications.

Wastewater goes through three treatment steps before it is considered tertiary recycled water: primary treatment, biological treatment (secondary), and filtration (tertiary). This is followed by disinfection, whereby chlorine is used to destroy pathogenic micro-organisms. These steps are necessary before tertiary recycled water is used for agricultural or landscape irrigation or released into the Russian River.

Between October 1 and May 14, tertiary recycled water from the treatment plant is discharged into the Russian River. Between May 15 and September 30, the recycled water is used to irrigate the Northwood Golf Course and forests outside the plant.

## Sonoma County Water Agency's Role

**During a 1995 restructuring** of the county government, the Sonoma County Water Agency assumed responsibility for managing the county sanitation zones and districts, which provide wastewater treatment, reclamation, and disposal for approximately 22,000 residences and businesses. Because some local wastewater treatment plants have not been significantly improved in more than 20 years, capital projects are needed to ensure compliance with state and federal treatment and discharge requirements. Each sanitation zone and district operates under a unique, individual permit from the California Regional Water Quality Control Board (San Francisco and North Coast regions) that sets the requirements for operation. The RRCSD operates under a permit from the North Coast Regional Water Quality Control Board.

## About Recycled Water

**Nature has recycled water for millions of years.** By duplicating much of nature's process through tertiary treatment, we are able to purify water to ensure that it meets the strict standards set by the California Department of Public Health. There are very stringent water-quality laws that apply to recycled water. The state standards for recycled water are referred to as *Title 22* and are incorporated in Title 22, Chapter 3, Division 4 of the California Code of Regulations, with stipulations applying to various types of reuse and levels of required treatment. The Regional Water Quality Control Board regulates the use and the application of recycled water and any associated runoff.

Title 22 allows for many uses of recycled water, including irrigation of food crops, orchards, and vineyards as well as parks, playgrounds, cemeteries, schoolyards, residential landscaping, freeway landscaping, golf courses, ornamental nurseries, and pasture for animals. Recycled water can also be used for fish hatcheries, cooling towers, decorative fountains, and fishing or boating recreational impoundments. Other allowable uses include industrial processing, commercial laundries, soil compaction, mixing concrete, making artificial snow, and flushing toilets, urinals, and sanitary sewers.

State health officials monitor the recycled water produced by RRCSD to ensure that it meets federal, state, and local water-quality standards. Recycled water is transported through a system of purple pipes, completely separate from the drinking-water and wastewater systems.

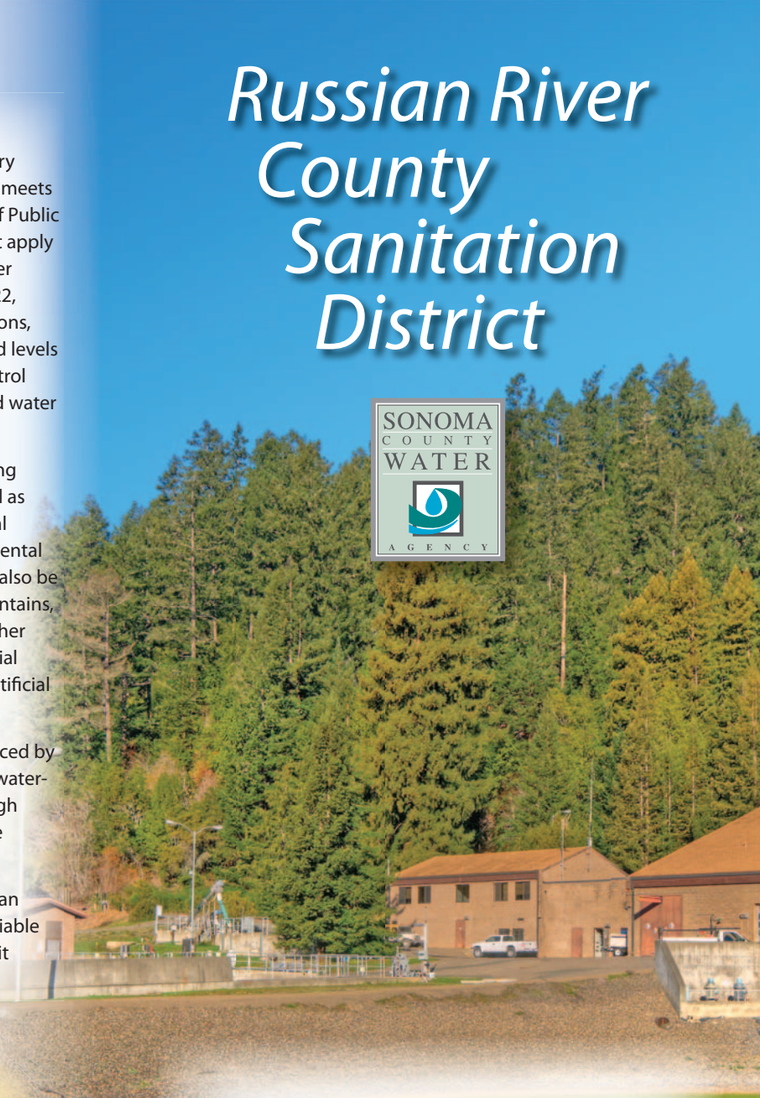
It's important to note that recycled water is cheaper than potable water and, in the case of drought, is a more reliable supply. For more information about recycled water, visit ***www.sonomacountywater.org***.

## RRCSD Board of Directors

**Valerie Brown**, First District Supervisor
**Mike Kerns**, Second District Supervisor
**Shirlee Zane**, Third District Supervisor
**Paul L. Kelley**, Fourth District Supervisor
**Efren Carrillo**, Fifth District Supervisor

For more information about the RRCSD, visit ***www.sonomacountywater.org*** or call (707) 547-1900.

# Russian River County Sanitation District



**The Russian River County Sanitation District** (RRCSD) treatment plant is located among the redwoods of the Russian River watershed in Guerneville, California. Constructed in 1983, the plant is designed and operated to provide its service area with state-of-the-art tertiary-treated wastewater for an average daily dry-weather flow of up to 710,000 gallons per day (gpd). The plant currently treats an average dry-weather flow of approximately 300,000 gpd.

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# Treatment Facilities and Processes

**1**

**Headworks** Raw sewage from domestic and commercial sources enters the treatment plant at the headworks. At this point large inorganic solids in the waste stream are removed.

**8**

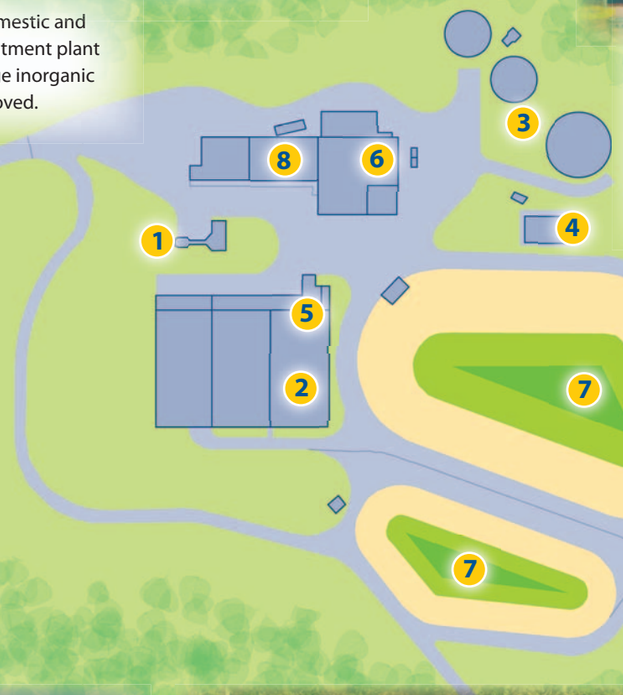
**Operations Building** The operations building contains personnel offices, facilities to control plant functions, and a laboratory to evaluate plant performance.

**7**

**Storage Reservoirs** Two reservoirs with a combined capacity of 4.5 million gallons are used to store recycled water from the tertiary filters. The recycled water is transported directly from the 3.5 million–gallon holding pond to the seasonal discharge locations, including nearby forests and the Northwood Golf Course. Tertiary effluent that does not meet water-quality standards is automatically diverted to the 1 million–gallon emergency pond, where it is then pumped back to the headworks or to an aeration basin for retreatment.

**2**

**Aeration Basins** The wastewater undergoes biological treatment in the aeration basins. Air is injected into the wastewater to promote the growth of microorganisms that feed on organic materials in the sewage.




**6**

**Solids Handling** The sludge remaining in the wastewater system after the secondary treatment process is mixed with polymer and dewatered in a press for disposal to landfill.

**3**

**Secondary Clarifiers** Wastewater undergoing biological treatment in the aeration basin is pumped to the clarifiers to separate the water from the solids. The suspended heavier materials settle to the bottom of the clarifiers as a thin mud—called sludge—and are returned to the aeration basins. Secondary-treated water flows over the weirs of the clarifier and is sent to the tertiary filters.

**4**

**Tertiary Treatment Filters** The clear effluent (treated wastewater) from the secondary clarifiers is filtered through an approved tertiary filter to produce recycled water. This filtering process removes the remaining suspended solids in the effluent. The solids that accumulate in the filters must be occasionally flushed out during a backwash cycle and returned to the aeration basins to prevent clogging.

**5**

**Disinfection** The clear effluent from the tertiary filters flows into the chlorine contact chamber, where pathogenic micro-oranisms are destroyed. After disinfection, any remaining chlorine is neutralized with sulfur dioxide. In the near future, a disinfection upgrade will replace the chlorine contact chamber with an ultraviolet (UV) system that reduces chemical use and chemical byproducts that might form.