



San Ramon Valley  
Recycled Water Program

RECYCLED  
WATER  
QUALITY

08

ANNUAL REPORT

## RECYCLED WATER BENEFITS OUR COMMUNITIES

In the midst of California's worst water shortage in decades, customers of the San Ramon Valley Recycled Water Program (SRVRWP) have been able to count on an environmentally responsible, drought resistant water supply to protect their investments in landscaping. Because Dublin and San Ramon have a locally controlled recycled water system, many of their parks, schools, golf courses, roadway medians, office parks, and residential common areas are thriving without using a drop of drinking water.

As a readily expandable resource for irrigation and other uses, recycled water is an essential element in California's long-term water supply picture. Greater use of recycled water, whether in the urban or agricultural sector, diminishes demand on limited fresh water sources. Additionally, reducing pumping

and discharging less treated wastewater into the San Francisco Bay also saves energy, lowers greenhouse gas emissions, and helps protect aquatic resources in the Bay.



The San Ramon Valley Recycled Water Program delivered 809 million gallons of recycled water during 2008, an increase of 9.6 percent from the previous year. This saved enough potable water to supply the indoor and outdoor needs of more than 6,000 homes for a year (at 366 gallons per day, an average amount in the Dublin-San Ramon area for a single family home). In this annual report, we highlight some of the

program's other accomplishments over the past year, including meeting or surpassing all regulatory requirements for water reuse, expanding the system to more customers in San Ramon, and taking a leadership role in developing statewide recycled water policy.



*Bert Michalczyk*

Bert Michalczyk  
General Manager  
Dublin San Ramon Services District



*Dennis M. Diemer*

Dennis M. Diemer  
General Manager  
East Bay Municipal Utility District

## CUSTOMER PROFILE:

### Dublin Unified School District

In 2008, Dublin Unified School District (DUSD) saved \$15,000 on their water bill, in part by using recycled water to irrigate their newest campuses.

DUSD was one of the largest customers of the San Ramon Valley Recycled Water Program in 2008, using nearly 2.4 million gallons of recycled water to irrigate lawns and other landscaping at three schools.

Dougherty Elementary, a 10-acre site built in 2000, and Fallon School, a 24-acre K-8 school built in 2006, initially used potable water for irrigation while the recycled water system was under construction. They changed over in late 2007. Green Elementary, another 10-acre site, opened in 2007 and has been on recycled water from the start.

“We don’t have comparison data for Green, but for Dougherty and Fallon overall water cost is about 15 percent less in 2008 compared to 2007,” said Energy Education Manager Brad Vereen. “We are implementing a comprehensive energy savings program that is bringing down costs at all of our schools. At our east Dublin campuses, recycled water gets a lot of the credit.”

School district officials worked closely with their water retailer, Dublin San Ramon Services District, to learn about managing recycled water systems. They also visited schools in southern California where water reuse is the norm for irrigation. According to Mike Zureich, DUSD director of maintenance and operations, the transition was fairly simple.

“We haven’t had the wear and tear on sprinkler parts and valves that we expected. Our local recycled water is very clean and the service has been good,” Zureich said. The biggest adjustment has been designing watering schedules to avoid public contact with recycled water. Irrigation occurs primarily at night when school fields are sure to be empty.

Another 10-acre elementary school in east Dublin will tap into the recycled water system within two years. District officials also hope that state and federal funding will be approved to retrofit irrigation systems at five older schools in central Dublin. Design work to split the potable and irrigation systems is already in the works for Dublin High School, which is being renovated from the ground up over a 10-year period.



*Even when surrounding hills turn brown in the heat of summer, the grounds of Fallon School will still be green thanks to recycled water .*

## CUSTOMER PROFILE:

### Villa San Ramon

When the founders of Villa San Ramon decided to take advantage of the San Ramon Valley Recycled Water Program, it was like buying an insurance policy for their lushly landscaped grounds.

“We had a lot invested in landscaping and we wanted to be able to keep watering it,” said Dan Shellooe, who with a business partner opened the senior living community in 1992. “It was only a matter of time until the next drought, and we knew we would be less impacted if we had recycled water.”

The community of 160 independent and assisted living apartments is

located at the southern end of the East Bay Municipal Utility District’s water service area and is near the SRVRWP transmission pipeline that runs along the Iron Horse Trail in San Ramon. In early 2002, an EBMUD team briefed Shellooe and his partner on the benefits of recycled water, proposed retrofitting the Villa so it could irrigate with recycled water, and then worked closely with the owners during retrofit design and construction. In 2003, EBMUD installed the necessary distribution pipelines that would eventually bring recycled water to the Villa, which came online in November 2006.

Vintage Senior Living, which owns 19 other communities in California and Washington, bought Villa San Ramon in 2008. The new owners also see the recycled water system as an important asset.

“I was skeptical when I first heard about using recycled water,” said Gene Maxwell, owner of Luxury Landscaping, which has



Residents of Villa San Ramon enjoy afternoon refreshments in the garden.

**Customer Profile: Villa San Ramon**  
(continued from previous page)

maintained Villa San Ramon’s grounds for nine years. “But we haven’t had any problems. In fact, the gazania groundcover is thriving, filling in much better than before. It must be the higher mineral content in the recycled water because nothing else has changed.”

“Being able to keep our property lush and green without using a drop of drinking water is a win-win for the owners and every person who lives at Villa San Ramon,” said Executive Director Jeralyn Ramsland. “Our residents love our beautiful landscaping.”

## Continuous Testing Ensures the Quality of Recycled Water

Recycled water supplied to San Ramon Valley Recycled Water Program customers meets all regulatory requirements for water reuse and surpasses these standards 99 percent of the time.

The table below summarizes water quality parameters tested in 2008.

Two key standards are monitored and recorded continuously by electronic means: turbidity (the number and size of particles suspended in the water) and ultraviolet transmittance (the amount of

ultraviolet light absorbed by particles during disinfection). Technicians in the DSRSD laboratory periodically test these parameters manually to ensure that the automatic monitoring equipment is accurately calibrated.

Every day, technicians also measure total coliform bacteria to make sure the water is clean and adequately disinfected and meets California’s public health standard. The laboratory tests the other parameters listed in the table on a monthly basis to ensure the water is safe for landscape irrigation and meets all regulatory requirements for recycled water.

### Recycled Water Quality in 2008

INORGANIC CHEMICALS (units)	AVG	RANGE
Selenium (µg/L)	2.0	< 2.0 - 2.5
Nitrate (as N) (mg/L)	1.1	0.3 - 2.2
Nitrite (as N) (mg/L)	1.2	0.4 - 2.6
REGULATED CONTAMINANTS WITH SECONDARY MCL'S*		
Conductivity (µmhos/cm)	1296	1063 - 1683
Chloride (mg/L)	162	126 - 189
Sulfate (mg/L)	111	78 - 145
Total Dissolved Solids (mg/L)	641	568 - 689
UNREGULATED CONTAMINANTS REQUIRING MONITORING*		
Boron (mg/L)	0.39	0.20 - 0.57
ADDITIONAL PARAMETERS		
Alkalinity (as Ca CO <sub>3</sub> )(mg/L)	272	190 - 350
Total Hardness (as CaCO <sub>3</sub> ) (mg/L)	223	176 - 300
Calcium (mg/L)	44	32 - 60
Magnesium (mg/L)	27	21 - 36
Potassium (mg/L)	24.7	20.4 - 27.5
Sodium (mg/L)	159	147 - 171
pH (standard units)	7.38	7.11 - 7.59
Silica (mg/L)	16.3	13.9 - 19.3
DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS		
Total Coliform Bacteria (MPN)	< 2**	< 2 - 17

\* Established by the State of California Department of Public Health

\*\* Median

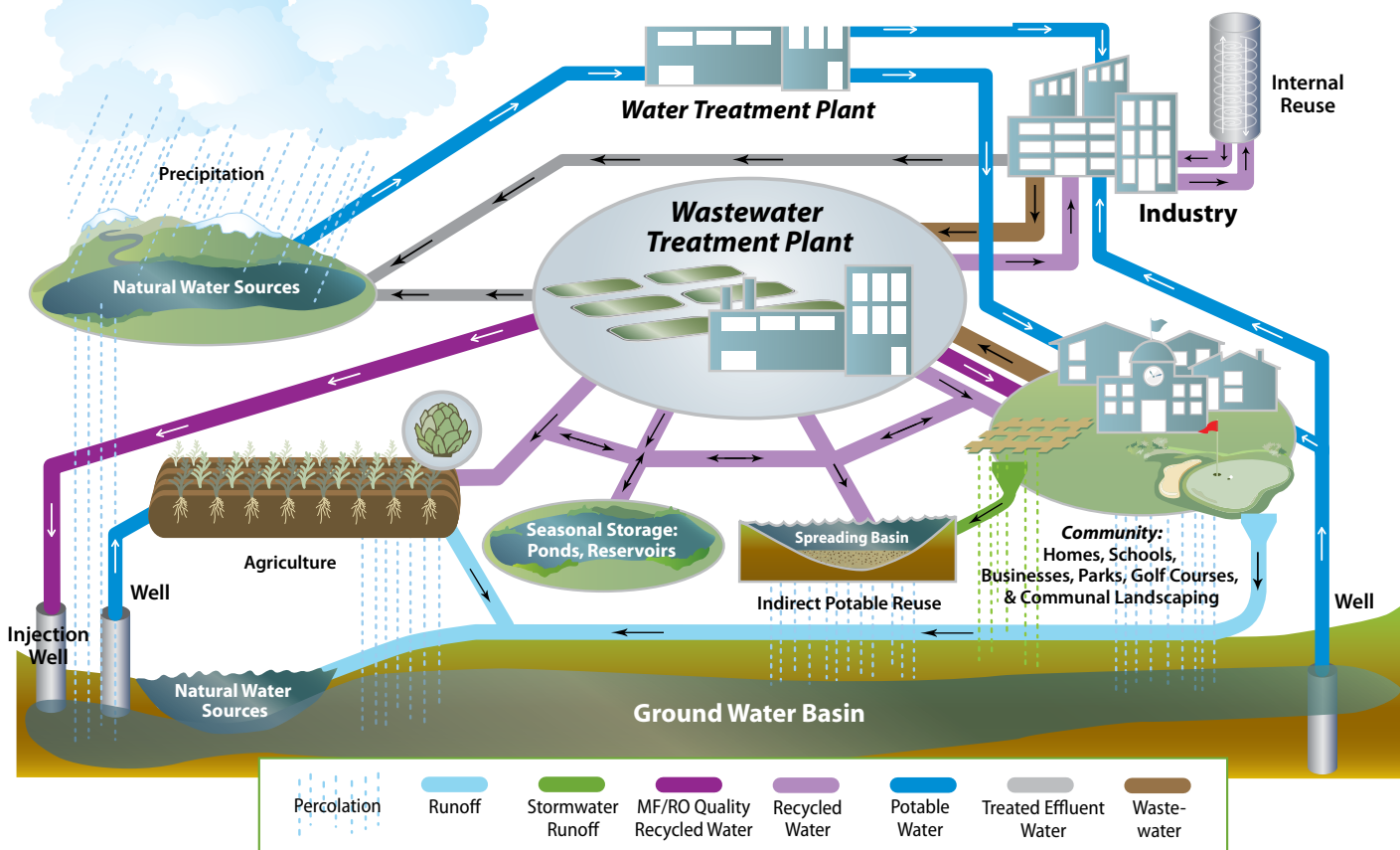
**ABBREVIATIONS:** mg/L = milligrams per liter, µg/L = micrograms per liter, MPN = most probable number, µmhos/cm = micromhos per centimeter

## Local Experience Helps Craft Statewide Recycled Water Policy

Approvals for new recycled water infrastructure in California have often been slowed or blocked by inconsistent interpretation of the rules governing permits and use. In February 2009, the State Water Resources Control Board changed this regulatory landscape by adopting a statewide Recycled Water Policy.

Bert Michalczyk, general manager of the Dublin San Ramon Services District, was a member of the stakeholder group of water industry and environmental leaders that crafted the policy. “This policy reflects consensus among a wide range of competing interests and should accelerate development of recycled water projects across the state,” he said.

## Recycled Water Cycle



“Our goal was to clarify regulations without compromising environmental protection or causing undue cost,” Michalczyk said.

The policy also addresses issues related to groundwater quality where they intersect with water reuse.

The new policy specifies permitting criteria for landscape irrigation and groundwater recharge projects, establishes requirements for regional salt and nutrient management plans, and sets up a program to evaluate the risks of pharmaceuticals and other “constituents of emerging concern” in wastewater and recycled water.

## Recycled Water Use Around the State

While communities all over California are turning to recycled water to stretch fresh water supplies, uses vary regionally. In the San Ramon Valley, recycled water irrigates landscaping. In Monterey County, recycled water irrigates more than 12,000 acres of food crops, reducing dependence on wells and slowing seawater intrusion into underground aquifers.

In Orange County, the world’s largest recycled water plant produces 70 million gallons a day that is injected into wells to recharge groundwater basins that supply drinking water and some that serve as barriers to seawater intrusion. Treated by microfiltration (MF) and reverse osmosis (RO), this water is so clean that lime has to be added to it to prevent mineral leaching from concrete pipes.

In Oakland, EBMUD has retrofitted its headquarters building so recycled water can be used for toilet flushing in one set of restrooms, for planter box irrigation, and for use in sidewalk-cleaning vehicles. Marin Municipal Water was the first to use recycled water in car washes. In Redwood City, a four star hotel uses recycled water in its commercial laundry.

# WORKING TOGETHER FOR WATER REUSE

As drought compounds California's water infrastructure and supply challenges, government agencies are advancing recycled water projects on many fronts to generate new water sources for irrigation and other nonpotable uses.

## **California Water Plan Update 2009**

At the state level, the 2009 update to the California Water Plan encourages water reuse to help the state's hydrologic regions become more self sufficient. By reclaiming water from wastewater, various parts of California can import less water from impacted ecosystems such as the Sacramento-San Joaquin Delta and reduce treated wastewater discharges to bays, rivers, and the ocean.

The plan calls on stakeholders to implement key initiatives in funding, technical assistance, regional planning, public education, research, changes to building and health and safety codes, and permitting procedures. Key recommendations include:

- Conduct a comprehensive inventory of recycling facilities in the state and set up regular reporting to help policy makers analyze successes and failures and set funding priorities.
- Require all state agencies to uniformly interpret state standards regarding recycled water. The State Water Resources Control Board moved this effort forward by adopting a statewide Recycled Water Policy in February 2009 (see related article on previous pages).
- Adopt and implement a dual plumbing code for California so more buildings can use recycled water for nonpotable purposes such as toilet flushing and cooling. The Department of Water Resources plans to submit the proposed code to the Building Standards Commission this summer.

Update 2009, which serves as a master plan for the multitude of agencies that manage California's water, notes that recycling water also can help the state use less energy and reduce greenhouse gas

emissions. According to the California Energy Commission, water related energy use accounts for nearly 20 percent of all electricity and 30 percent of non-power plant natural gas consumed in the state. In contrast to pumping potable water hundreds of miles, recycling local wastewater is a relatively energy efficient water management strategy.



*The SRVRWP water recycling plant.*

## **Bay Area Recycled Water Coalition**

At the local level, 22 San Francisco Bay Area public agencies are collaborating to obtain state and federal funds for projects that will deliver more than 10.5 billion gallons of recycled water annually in the near-term and nearly 30 billion gallons per year when fully implemented.

A project to extend the recycled water distribution pipelines to central Dublin was among six coalition

proposals introduced to the House of Representatives by the Bay Area Congressional delegation in May. The project would bring purple irrigation pipes to five schools, four parks, and a large multi-family residential complex, reducing annual potable water demand by approximately 70 million gallons. That is enough to supply the annual indoor and outdoor needs of about 525 homes in Dublin, where average consumption is 345 gallons per day per single-family residence.

**Pipeline Map (right):** In 2008, construction began on a sixth pump station near the intersection of the Iron Horse Trail and Bollinger Canyon Road in San Ramon, and a 6,500-foot segment of pipeline that completes the San Ramon Valley Recycled Water Program's transmission pipeline, essentially a large "loop" from which smaller pipelines branch to deliver water to specific customers. When finished in summer 2009, these two facilities will increase overall system reliability and enable EBMUD to bring recycled water irrigation to the Bishop Ranch Business Park, the Chevron complex, and other customers in northern San Ramon.

# San Ramon Valley Recycled Water Program Pipeline Map

June 2009





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THE SAN RAMON VALLEY RECYCLED WATER PROGRAM IS A VALUABLE LOCAL RESOURCE—CONSERVING SCARCE DRINKING WATER SUPPLIES, REDUCING WASTEWATER DISCHARGES TO SAN FRANCISCO BAY, AND KEEPING OUR COMMUNITY GREEN EVEN IN TIMES OF DROUGHT. THE PROGRAM IS A PARTNERSHIP BETWEEN DUBLIN SAN RAMON SERVICES DISTRICT (DSRSD) AND EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD) THAT SERVES COMMERCIAL AND PUBLIC CUSTOMERS.