



## 2011 Reclaimed Water Consumer Confidence Report Reedy Creek Improvement District

Reedy Creek Improvement District (RCID or District) has been reclaiming and reusing water for almost two decades. Reuse of treated wastewater for non-potable purposes has been a water conservation initiative at RCID that has reduced the consumption of potable water and furthered the conservation of our natural resources. Today, reclaimed water meets about 30% of the overall water resource needs of the District through a wide variety of uses, including:

- Landscape irrigation (over 1500 acres)
- Vehicle and bus washing (over 280 buses and 1000 vehicles)
- Street and sidewalk cleaning
- Cooling tower makeup
- Fire suppression and fire prevention
- Dust control and construction
- Process water (at treatment plant).



Cooling Towers at Central Energy Plant



Landscape Irrigation



Vehicle and Bus Washing Facility



Reclaimed Water Storage Tank



Of the approximately 1800 acres of irrigated area within the District, over 80% are irrigated with reclaimed water, and the District and its customers have plans to convert most of the balance to reclaimed water in the future. All new development and most re-development within RCID are required to connect to and use reclaimed water for irrigation and other non-potable needs. Doing so helps to insure sustainability of the drinking water supply – the Upper Floridan Aquifer, by reducing demands on this source of high quality water.

Reclaimed water is the product of the wastewater treatment process.

At RCID, wastewater is treated to an advanced level via biological means, filtered and disinfected. It typically meets all of the primary and secondary drinking water standards as set by the U.S. Environmental Protection Agency, and is visually indistinguishable from tap water. A comparison of the latest analysis of the reclaimed water to the drinking water standards is provided in the table below. While the reclaimed water typically meets the drinking water standards, it is not and should not be used for consumption, cooking, bathing or body contact, in pools or spas or to wash edible crops. This is because the degree of risk for disease transmission or ingestion of contaminate(s) is slightly higher with reclaimed water than with potable water.

Nutrients in reclaimed water will vary widely with the source and level of treatment provided. Nutrients (principally nitrogen and phosphorus) are essential to all life forms, but excessive nutrients can lead to imbalances in aquatic flora and fauna, spawning algae blooms and nuisance species if levels exceed certain thresholds for extended periods. At RCID, most of the nutrients in the reclaimed water are removed in the treatment process (typically more than 95%) and those forms that remain are not normally readily available to plants and aquatic organisms. RCID's product water averaged 1.09 mg/l (or 1.09 parts per million) for total nitrogen and 0.10 mg/l for total phosphorus last year (2010). These values represent excellent removal and are near the limits of achievable technology. Regardless, users of reclaimed water should be aware of the presence of these constituents and account for their value when determining fertilization rates and when operating irrigation systems in close proximity to surface waters.

Reclaimed water is delivered to the RCID customers through a distribution system of underground pipes, very similar in size and extent to that of the potable water distribution system. The pressure of the water in both systems is nearly identical. The pipes of the reuse distribution system are color coded purple, by pigmentation, paint, or striping and tape. Purple pipes, hydrants, valves, valve boxes and fittings identify the reclaimed water system throughout the RCID. The purple designation is a State requirement and is an important measure to guard against cross connections with other piping systems, and other unintended uses.



Color Coded Reclaimed Water Distribution Pipeline

Reedy Creek Improvement District		Reclaimed Water Quality Analysis Results - for 2006 through 2010						Drinking Water Standard
Parameter Name	Units*	Analysis Results by year						
Inorganics	Year	2006	2007	2008	2009	2010	5 Year Avg.	
Arsenic	mg/l	0.000364	<0.0015	<0.0015	<0.0015	<0.0015	N/A	0.05
barium	mg/l	0.00284	<0.0025	0.0028	0.0035	0.0015	0.0021	1
Cadmium	mg/l	< 0.00017	<0.00038	<0.00038	<0.00038	<0.00038	BDL	0.01
Chromium	mg/l	<0.00062	<0.006	<0.006	<0.006	<0.006	BDL	0.05
Flouride	mg/l	0.2	0.31	0.08	0.19	0.03	0.16	4
Lead	mg/l	<0.00028	<0.00054	<0.00054	<0.00054	<0.00054	BDL	0.05
Mercury	mg/l	<0.00011	<0.00005	<0.00005	<0.00005	<0.00005	BDL	0.002
Nitrate as N	mg/l	0.908	0.391	0.57	0.664	0.668	0.640	10
Selenium	mg/l	<0.00015	<0.0015	<0.0015	0.0018	<0.0015	0.0018	0.01
Silver	mg/l	<0.000033	<0.0005	<0.0001	<0.0001	<0.0001	BDL	0.05
Sodium	mg/l	86.9	160	73.8	71.9	82.3	95.0	160
<b>Volatile Organics</b>								
Ethylene dibromide (EDB)	ug/l	<0.012	<0.01	<0.006	<0.009	<0.009	BDL	0.02
Para-dichlorobenzene	ug/l	<1.0	<1.0	<1.0	<1	<1	BDL	75
Vinyl chloride	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	1
1,1 -dichloroethane	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	7
1,2-dichloroethane	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	3
1,1,1-trichloroethane	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	200
Carbon tetrachloride	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	3
Trichloroethane	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	3
Tetrachloroethane	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	BDL	3
Benzene	ug/l	<0.5	<0.5	<0.5	<0.5	<0.5	BDL	1
<b>Trihalomethanes</b>								
Total Trihalomethane (TTHM)	ug/l	43.8	66.7	59.4	179	46.5	79.1	80
<b>Organics</b>								
Endrin	ug/l	<0.0012	0.021	<0.02	<0.019	<0.003	N/A	0.02
Lindane	ug/l	<0.0034	0.097	0.03	<0.025	<0.0031	0.064	4
Methoxychlor	ug/l	<0.0021	<0.0021	<0.02	<0.024	<0.024	BDL	100
Toxaphene	ug/l	<0.09	<0.090	<0.09	<0.09	<0.00022	BDL	5
2,4-D	ug/l	0.31	<0.12	0.32	<0.091	<0.099	0.32	100
2,4,5-TP (Silvex)	ug/l	<0.046	<0.11	<0.087	<0.056	<0.05	BDL	10
<b>Radiologicals</b>								
Gross Alpha	pCi/L	<0.9	<2.1	<1.6	<1.3	1.3	BDL	15
Radium 226 and 228	pCi/L	<1.2	0.75	0.2	0.7	0.7	0.59	5
<b>Secondary Chemistry</b>								
Chloride	mg/l	84.1	104	142	166	110	121	250
Copper	mg/l	0.00058	0.0021	<0.0015	0.0015	<0.0015	0.0014	1
Iron	mg/l	0.0984	0.12	0.13	0.1	0.15	0.12	0.3
Manganese	mg/l	0.000403	0.0038	<0.0015	0.0017	<0.0015	0.0020	0.05
Sulfate	mg/l	40.5	50.9	60.3	53.9	55.3	52.2	250
Zinc	mg/l	0.013	<0.025	<0.025	0.025	<0.025	0.019	5
pH (units)	mg/l	7.3	7.4	6.2	7.5	7.6	6.2-7.6	6.5-8.5
Total Dissolved Solids	mg/l	398	391	410	419	402	404	500
Foaming Agents	mg/l	0.03	0.045	<0.006	0.021	0.059	0.039	0.5

\*mg/l are milligrams per liter or parts per million

\*ug/l are micrograms per liter of parts per billion

\*pCi/l are picoCuries per liter

The less than (<) symbol means that the sample analyzed tested below the detection limit of the analysis technique

BDL means below the detection limit of the analysis technique employed

XX.XXX indicates sample parameters that did not meet or exceeded the drinking water standard

N/A indicates that an average value was not possible to calculate due to a mix of results above and below detection limits for two or fewer years.

Another aspect of the RCID reuse system is the use of rapid infiltration basins, or RIBs, for groundwater recharge. During wet weather periods or when demands on the reuse distribution system are low, the RIBs are utilized for disposition of the product water and serve to recharge the local aquifers. The RIBs consist of 85 one-acre basins, situated on a ridge of sandy soils with high percolation characteristics. Water applied to the RIBs percolates thru the sandy soils (between 30 and 70 feet thick) and replenishes the surficial and Upper Floridan aquifers. This practice helps to insure sustainability of the water supplies by returning a portion of the product water to its source. During the course of a typical year about 50% of the product water will be applied to the RIBs and 50% to the reuse distribution system.

The RCID RIBs are located in the northwest corner of the District and the site is bisected by the Western Beltway. The RCID RIBs are visible to passing motorists from both sides of the beltway between the Seidel Road and Western Way intersections.



Service rates for reclaimed water are typically about 80% of those for potable water, and include a similar volumetric charge and a readiness-to-serve charge. The rate is intended to provide an economic incentive for customers to use reclaimed water in lieu of potable, as well as to conserve the resource and to discourage wasteful practices. Some of the benefits of using reclaimed water are:

- Conservation of the drinking water supply
- Drought resistant and not subject to restrictions
- Promotes sustainability and conservation of natural resources
- Delays the development of expensive alternative water supplies
- Reduces potential adverse impacts to wetlands and surface waters

RCID appreciates this opportunity to educate its customers about reclaimed water and its role in water conservation. For additional information, please contact Ted McKim at 407-824-4846 or [ted.mckim@disney.com](mailto:ted.mckim@disney.com).

