



Reedy Creek Improvement District 2020 Reclaimed Water Quality Report

Water is too valuable to be used only once. Reedy Creek Improvement District (RCID or District) has been reclaiming and reusing water for three decades. Reuse of treated wastewater for non-potable (non-drinking) purposes has been a long running water conservation initiative at RCID that has reduced the consumption of potable water and bolstered the conservation of our natural resources. Today, reclaimed water meets close to 30% of all water re-source needs of the 43 square mile District.

RECLAIMED WATER USES

- Landscape irrigation (about 1535 acres)
- Vehicle and bus washing (about 390 buses and 1300 vehicles)
- Street and sidewalk cleaning
- Cooling tower makeup
- Fire suppression and fire prevention
- Dust control and construction
- Process water (at wastewater treatment plant)
- Toilet flushing (at selected locations)

Of the approximately 1,942 acres of irrigated area within the District, about 79% is irrigated with reclaimed water. In the future, the District and its customers will continue to pursue conversions of reclaimed water whenever feasible. All new development and redevelopment within RCID is required to connect and use reclaimed water for irrigation and other non-potable needs. Doing so helps to ensure sustainability of the drinking water supply, the Upper Floridian Aquifer, by reducing demands on this finite source of high quality water.



RECLAIMED WATER STANDARDS

Reclaimed water is a product of the wastewater treatment process. At RCID, wastewater is treated to an advanced level via biological means. It is then filtered and disinfected. The resultant reclaimed water 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. The latest comparison of our reclaimed water quality result to the drinking water standards is provided in the accompanying table. While the reclaimed water typically meets the drinking water standards, it is not (and should not) to be used for consumption, cooking, bathing or body contact, in pools or spas, or to wash edible crops.



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. 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 reclaimed water averaged 1.31 mg/l (or 1.31 part per million) of total nitrogen and 0.14 mg/l of total phosphorus in 2020. FDEP regulatory annual limits for nitrogen and phosphorus are 6.0 mg/L and 1.0 mg/L respectfully. These values represent excellent removal and are near the limits of achievable technology. 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 DISTRIBUTION AND DISPOSAL

Reclaimed water is delivered to RCID customers through a distribution system of underground pipes very similar to the potable water system. 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 RCID. The purple designation is a State of Florida requirement and is an important measure to guard against cross connections with other piping systems and other unintended uses.



Another aspect of the RCID reuse system is the use of rapid infiltration basins (RIBs) for wet weather disposal and groundwater recharge. During wet weather periods (or when demands on the reuse distribution system are low) the RIBs are utilized for disposition of excess product water. Disposing excess reclaimed water in RIBs recharges 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 through the sandy soils (between 30 and 70 feet thick) and replenishes the surficial and Upper Floridian aquifers. This practice helps to ensure sustainability of the water supplies by returning a portion of the product water to its source. During the course of 2020, about 49% of the product water was applied to the RIBs and 51% 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 (Florida State Road 429). The RCID RIBs are visible to passing motorists from both sides of the Beltway between Seidel Road and Western Way.

RECLAIMED WATER RATES

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 water, as well as to conserve the resource and to discourage wasteful practices. The current volumetric rate is \$0.8868/1,000 gallons.

BENEFITS OF RECLAIMED WATER

- Conservation of the drinking water supply
- Drought resistant and not subject to water use 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



RECLAIMED WATER KNOWLEDGE

RCID appreciates this opportunity to educate its customers about reclaimed water and its role in water conservation. For additional information, please contact Randy Sims at 407-824-4842 or Randall.P.Sims@disney.com



**Reedy Creek Improvement District
2020 Reclaimed Water Quality Analysis
Results**

Parameter Name	Units*	Conc.	Results	Drinking Water Standard	Parameter Name	Units*	Conc.	Results	Drinking Water Standards
Inorganics					Organics				
Antimony	mg/l	<0.001	BDL	0.006	2,3,7,8- tetrachlorodibenzo-p-dioxin	ug/l	<0.0000045	BDL	0.00003
Arsenic	mg/l	<0.0015	BDL	0.01	2,4- dichlororphenoxyacetic acid	ug/l	<0.037	BDL	100
Barium	mg/l	0.0015	0.0015	2	2,4,5-TP (Silvex)	ug/l	<0.060	BDL	50
Beryllium	mg/l	< 0.00012	BDL	0.004	Alachlor	ug/l	< 0.032	BDL	2
Cadmium	mg/l	<0.00009	BDL	0.005	Atrazine	ug/l	< 0.021	BDL	3
Chromium	mg/l	<0.001	0.001	0.01	Benzo(a)pyrene	ug/l	<0.028	BDL	2
Cyanide	mg/l	<0.025	BDL	0.	Carbofuran	ug/l	<0.25	BDL	40
Fluoride	mg/l	0.00016	0.00016	4	Chlordane (tech mix. and meta	ug/l	<0.16	BDL	2
Lead	mg/l	<0.0004	BDL	0.015	Dalapon	ug/l	<0.47	BDL	200
Mercury	mg/l	<0.00005	BDL	0.002	Bis(2-ethylhexyl)adipate	ug/l	<0.59	BDL	400
Molybdenum	mg/l	0.01	0.01	N	Bis (2-ethylhexyl) phthalate	ug/l	<0.59	BDL	6
Nickel	mg/l	0.001	0.001	0.	Dibromochloropropane (DBCP)	ug/l	<0.0048	BDL	0.2
Nitrate as N	mg/l	0.00027	0.00027	10	Dinoseb	ug/l	<0.15	BDL	7
Nitrite as N	mg/l	< 0.005	BDL	1	Diquat	ug/l	<0.40	BDL	20
Nitrate plus Nitrite	*mg/l	0.479	0.479	10	Endothall	ug/l	<6.3	BDL	100
Selenium	mg/l	0.0005	0.0005	0.05	Endrin	ug/l	<0.0021	BDL	0.02
Silver	mg/l	< 0.00005	BDL	0.05	Ethylene Dibromide (1,2-dibromoethane)	ug/l	<0.0021	BDL	0.02
Sodium	mg/l	0.0922	0.0922	160	Glyphosate	ug/l	<5.0	BDL	700
Thallium	mg/l	< 0.0003	BDL	0.002	Heptachlor	ug/l	<0.0060	BDL	0.4
Volatile Organics					Heptachlor Epoxide				
Para (1,4)-dichlorobenzene	ug/l	<0.13	BDL	75	Hexachlorobenzene	ug/l	<0.040	BDL	1
Vinyl chloride	ug/l	<0.16	BDL	1	Hexachlorocyclopentadiene	ug/l	<0.041	BDL	50
1,1 -dichloroethylene	ug/l	<0.15	BDL	7	Lindane	ug/l	<0.0023	BDL	2
1,1 -dichloroethane	ug/l	<0.015	BDL	N	Methoxychlor	ug/l	<0.0074	BDL	40
1,2-dichloroethane	ug/l	<0.086	BDL	3	Oxamyl (vydate)	ug/l	<0.37	BDL	200
1,1,1-trichloroethane	ug/l	<0.15	BDL	200	Pentachlorophenol	ug/l	<0.038	BDL	1
1,1,2 - trichloroethane	ug/l	<0.16	BDL	5	Picloram	ug/l	<0.077	BLD	500
1,2 -dichloropropane	ug/l	<0.096	BDL	5	Polychlorinated Biphenyls (PCBs)	ug/l	<0.044	BDL	0.5
1,2,4-trichlorobenzene	ug/l	<0.12	BDL	70	Simazine	ug/l	<0.034	BDL	4
Cis-1,2-dichloroethene	ug/l	<0.090	BDL	70	Toxaphene	ug/l	<0.055	BDL	3
Dichloromethane (methylene chloride)	ug/l	<0.20	BDL	5	Radiologicals				
Ethylbenzene	ug/l	< 0.099	BDL	700	Gross Alpha	pCi/L	<1.6	BDL	15
Monochlorobenzene	ug/l	<0.14	BDL	100	Radium 226 and 228	pCi/L	<0.9	BDL	5
1,2-dichlorobenzene	ug/l	< 0.16	BDL	600	Secondary Chemistry				
Styrene	ug/l	<0.089	BDL	100	Aluminum, Total Recoverable	mg/l	<0.01	BDL	0.2
Tetrachloroethylene	ug/l	<0.18	BDL	3	Chloride	mg/l	117	117	250
Toluene	ug/l	<0.086	BDL	1000	Copper	mg/l	0.0005	0.0005	1
1,2-trans-dichloroethylene	ug/l	<0.090	BDL	100	Iron	mg/l	0.0001	0.0001	0.3
Trichloroethylene	ug/l	<0.13	BDL	3	Manganese	mg/l	0.001	0.001	0.05
Xylenes	ug/l	<0.086	BDL	10,000	Sulfate	mg/l	49.8	49.8	250
Carbon tetrachloride	ug/l	<0.11	BDL	3	Zinc	mg/l	0.024	0.024	5.0
Benzene	ug/l	<0.082	BDL	1	pH (units)	mg/l	7.4	7.4	6.5-8.5
Trihalomethanes					Total Dissolved Solids	mg/l	443	443	500
Bromoform	ug/l	<0.39	BDL	N	Foaming Agents	mg/l	<0.099	BDL	0.5
Bromodichloromethane	ug/l	13	13	N					
Chloroform	ug/l	37	37	N					
Dibromochloromethane	ug/l	2.5	2.5	N					
Total Trihalomethanes (TTHM)	ug/l	54.0	54.0	80					

Units:
 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
 **BDL means below the detection limit of the analysis technique employed