



Reedy Creek Improvement District

2021 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 2.27 mg/l (or 2.27 part per million) of total nitrogen and 0.24 mg/l of total phosphorus in 2021. FDEP regulatory annual limits for nitrogen and phosphorus are 6.0 mg/L and 1.0 mg/L respectively. 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 2021, about 50% of the product water was 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 (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 2017 Reclaimed Water Quality Analysis Results

(Samples Collected March 5-17, 2021)

Parameter Name	Units*	Conc.	Results	Drinking Water Standards	Parameter Name	Units*	Conc.	Results	Drinking Water Standards
Inorganics					Organics				
		<0.001	BDL		2,3,7,8- tetrachlorodibenzo-p-dioxin	ug/l	<0.000036	BDL	0.00003
Antimony	mg/l	<0.0015	BDL	0.006	2,4- dichlororphenoxyacetic acid	ug/l	<0.1	BDL	100
Arsenic	mg/l	<0.0015	BDL	0.01	2,4,5-TP (Silvex)	ug/l	<0.05	BDL	50
Barium	mg/l	0.0015	0.0015	2	Alachlor	ug/l	<0.05	BDL	2
Beryllium	mg/l	0.00039	BDL	0.004	Atrazine	ug/l	<0.03	BDL	3
Cadmium	mg/l	<0.0001	BDL	0.005	Benzo(a)pyrene	ug/l	<0.01	BDL	2
Chromium	mg/l	0.001	0.001	0.01	Carbofuran	ug/l	<0.3	BDL	40
Cyanide	mg/l	0.002	0.002	0	Chlordane (tech mix. and metabolites)	ug/l	<0.01	BDL	2
Flouride	mg/l	0.00004	0.00004	4	Dalapon	ug/l	1.4	1.4	200
Lead	mg/l	<0.0004	BDL	0.015	Bis(2-ethylhexyl)adipate	ug/l	<0.6	BDL	400
Mercury	mg/l	<0.0005	BDL	0.002	Bis (2-ethylhexyl) phthalate	ug/l	<0.6	BDL	6
Nickel	mg/l	<0.001	BDL	0	Dibromochloropropane (DBCP)	ug/l	<0.0023	BDL	0.2
Nitrate as N	mg/l	0.522	0.522	10	Dinoseb	ug/l	<0.08	BDL	7
Nitrite as N	mg/l	<0.005	BDL	1	Diquat	ug/l	<0.2	BDL	20
Nitrate plus Nitrite	mg/l	0.522	0.5.22	10	Endothall	ug/l	<3.7	BDL	100
Selenium	mg/l	0.0005	0.0005	0.05	Endrin	ug/l	<0.01	BDL	0.02
Silver	mg/l	<0.00005	BDL	0.05	Ethylene Dibromide (1,2-dibromoethane)	ug/l	<0.0024	BDL	0.02
Sodium	mg/l	82.9	82.9	160	Glyphosate	ug/l	<0.0033	BDL	700
Thallium	mg/l	< 0.0003	BDL	0.002	Heptachlor	ug/l	<0.01	BDL	0.4
Volatile Organics					Heptachlor Epoxide	ug/l	<0.02	BDL	0.2
Para (1,4)-dichlorobenzene	ug/l	<0.013	BDL	75	Hexachlorobenzene	ug/l	<0.01	BDL	1
Vinyl chloride	ug/l	<0.16	BDL	1	Hexachlorocyclopentadiene	ug/l	0.01	0.01	50
1,1 -dichloroethylene	ug/l	<0.15	BDL	7	Lindane	ug/l	<0.01	BDL	0.2
1,2-dichloroethane	ug/l	<0.086	BDL	3	Methoxychlor	ug/l	<0.05	BDL	40
1,1,1-trichloroethane	ug/l	<0.15	BDL	200	Oxamyl (vydate)	ug/l	<0.3	BDL	200
1,1,2 - trichloroethane	ug/l	<0.16	BDL	5	Pentachlorophenol	ug/l	<0.02	BDL	1
1,2 -dichloropropane	ug/l	<0.096	BDL	5	Picloram	ug/l	<0.07	BLD	500
1,2,4-trichlorobenzene	ug/l	<0.12	BDL	70	Polychlorinated Biphenyls (PCBs)	ug/l	<0.026	BDL	0.5
Cis-1,2-dichloroethene	ug/l	<0.090	BDL	70	Simazine	ug/l	<0.03	BDL	4
Dichloromethane (methylene chloride)	ug/l	<0.20	BDL	5	Toxaphene	ug/l	<0.4	BDL	3
Ethylbenzene	ug/l	< 0.099	BDL	700	Radiologicals				
Monochlorobenzene	ug/l	<0.14	BDL	100	Gross Alpha	pCi/L	<4.0	BDL	15
1,2-dichlorobenzene	ug/l	< 0.16	BDL	600	Radium 226 and 228	pCi/L	<0.8	BDL	5
Styrene	ug/l	<0.089	BDL	100	Secondary Chemistry				
Tetrachloroethylene	ug/l	<0.18	BDL	3	Aluminum, Total Recoverable	mg/l	0.0100	0.0100	0.2
Toluene	ug/l	<0.086	BDL	1000	Chloride	mg/l	91.2	91.2	250
1,2-trans-dichloroethylene	ug/l	<0.090	BDL	100	Copper	mg/l	0.0025	0.0025	1
Trichloroethylene	ug/l	<0.13	BDL	3	Iron	mg/l	0.11	0.11	0.3
Xylenes	ug/l	<0.086	BDL	10,000	Manganese	mg/l	0.001	0.001	0.05
Carbon tetrachloride	ug/l	<0.11	BDL	3	Sulfate	mg/l	43	43	250
Benzene	ug/l	<0.082	BDL	1	Zinc	mg/l	0.022	0.022	5.0
Total Trihalomethanes (TTHM)	ug/l	68	68.0	80	pH (units)	mg/l	7.2	7.2	6.5-8.5
					Total Dissolved Solids	mg/l	397	397	500
					Foaming Agents	mg/l	<0.099	BDL	0.5

*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