



City of Marco Island

Meeting Date: June 5, 2023
To: City Council
From: Jeffrey E. Poteet, General Manager- Water & Sewer
Through: Mike McNees, City Manager
Re: Water and Sewer (W&S) Departmental Report

Both the City's drinking water and wastewater operations follow Florida Department of Environmental Protection (FDEP) regulations and all other regulatory entity requirements. The Water and Sewer (W&S) Department is operating within the approved budget. Below is a summary of department activities during the past month.

Water Quality Work Plan Update – Water and Sewer Department

Staff have been working on updating the reclaimed water facility geographic information system (GIS) map. The parcel identification number, acreage (total and permeable), meter global positioning system (GPS) coordinates, and meter serial number are being added to the map for quick access information.

The City's Drinking Water Supply

Through social media posts, City staff believe that recent drought conditions have made some residents concerned that the City's potable water supply is in jeopardy, it is not. Drought conditions are normal climate patterns for southwest Florida. Every year, during the dry season the water in Henderson Creek lowers. The reduction of water in the Creek reduces the feed water flow in the City's source water lakes thus reducing the lake level. Once the seasonal rains begin, it does not take long for the lakes to recover. Recent rains have already begun, and the lake levels are rising.

Electrical Cost Increase

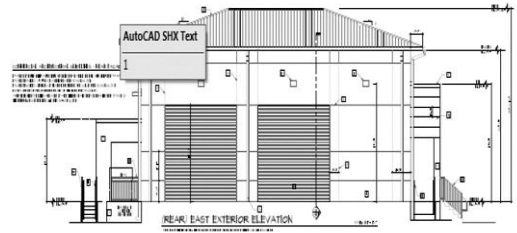
Over the past year, Florida Power and Light (FP&L) and Lee County Electric Cooperative (LCEC) have increased rates substantially. During the FY23 budget process, the FP&L rate increase was known and budgeted; therefore, there is no funding shortfall for electrical costs at the City's off Island locations. However, the on-island facilities electrical needs are serviced by LCEC and during the budget process, the LCEC rate increase was unknown. Staff incorporated an electrical rate increase for on-island power; however, a 317% increase for the "Power Cost Adjustment Fee" (from \$0.01330/kWh to 0.05550/kWh) was not anticipated.

Furthermore, ongoing membrane issues at the North Water Treatment Plant resulted in the need to rely on the South Water Treatment Plant (SWTP) to process more water than anticipated. Staff budgeted the SWTP on a finished water demand of 3.0-MGD; however, the actual SWTP demand is 3.75-MGD.

The electrical funding shortfall in this year's budget is \$822,000. While there are some savings in this year's budget across cost centers, this amount is too large to cover without reappropriating funding from the unrestricted fund balance (reserves). The unrestricted fund balance is currently at \$14,377,516. Staff will be presenting the reappropriation to City Council at the June 19 meeting.

Collection & Distribution (C&D) Building

The bid opening for the construction of the new C&D building is scheduled for 5/30/23. The building is planned to be constructed on the Elkcarn Circle campus, where the North Water Treatment Plant and Reclaimed Water Production Facility are located. The Award for the contract is planned to be presented to the City Council for consideration on 6/19/23.

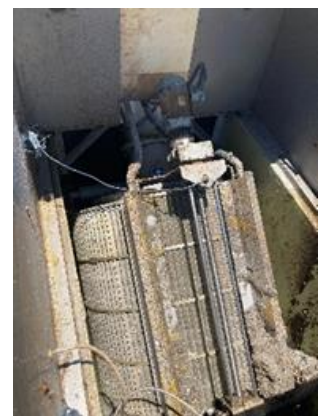


Rotary Drum Screen Rehabilitation Project

The pre-treatment process at the Reclaimed Water Production Facility consists of 3 rotary drum screens. These screens are designed to remove solid and debris from the wastewater influent stream. Solids are removed from the wastewater stream, dewatered, and placed in the dumpsters for final disposal in a landfill.

The wastewater influent stream is a harsh environment, hard on equipment. Annually, the screens are inspected, and parts are replaced as needed. This year's inspection identified the need to replace five (5) solenoid manifold valves that are failing and various parts on the rotary drum screens.

To make the repairs on the screens, a crane will be rented to hoist each screen from the top of the headworks structure (30') to the ground where the repairs will be made. The removal, repair, and replacement of each screen will be done individually. The repairs will take 2 weeks to complete. Not including the rental costs of a crane, the repair cost will be \$87,410.69.



Since the original equipment manufacturer system components are required for operability and compatibility with the current rotary drum screen of the headworks structure, the repair will not be publicly bid. Therefore, staff will seek City Council's approval to utilize a non-competitive procurement for this work, as defined in the City Code of Ordinances, Article V. Division 2, Section 2-255 (c). This project will be presented to City Council on 6/5/23 for consideration.

South Water Treatment Plant (SWTP) Rezone

The City's SWTP is located off Lily Court, just south of Mackle Park. The potable water distribution center has been in operation on this site since the 1970's and the groundwater treatment operation was added in 1989. The property is zoned residential with approved conditional uses for the storage tanks, pumping systems, warehouse, and treatment plant operation. The City's Public Works (PW) and Collection and Distribution (C&D) teams have been working out of this location since 2008.



The temporary conditional use permit allowing PW and C&D staff to work out of this location expired in 2012. While the C&D team is planning to relocate to the Elkcarn Circle site, Public Works plans to continue to work out of the Lily Court location. Therefore, it is necessary to rezone the property from residential to public use to align the site with the actual use. Staff has requested a proposal from a firm contracted under the City's engineering services contract (19-012) to help with this rezoning effort.

Backflow Maintenance Program

In 1992, the State mandated that all new structures connected to a public potable water distribution system must install a backflow device. This decision was made to keep contaminated water out of the public potable water supply and provide the highest level of protection. The traditional backflow device on Marco Island is the above-ground assembly just downstream of the water meter (pictured). This device, a reduced pressure zone assembly (RPZ) must be maintained annually and rebuilt every 5-years.



Until 2017, the ownership and maintenance of the backflow assembly was the homeowner's responsibility. Many homes on Marco Island did not have a backflow device as they were constructed prior to the mandate. Furthermore, many homeowners failed to maintain their backflow devices. Between homes without backflow prevention and unmaintained backflow devices, the City's potable water distribution system was susceptible to contamination. To alleviate this situation, in 2017 City Council approved the backflow maintenance program. This program provides qualified City staff to test and maintain residential backflow devices.

Around the time that City Council approved the backflow maintenance program, staff discovered a vendor that made a water meter with a backflow assembly (pictured). Neptune Technology Group manufactures the only 5/8"x3/4" water meter with a double check backflow assembly, which made sense to replace old water meters with the backflow meter. Recently, Neptune has informed us that the 5/8x3/4 backflow meter is being discontinued. Therefore, new structures will need to install the traditional, above ground RPZ moving forward. Furthermore, when it is time to replace the backflow meter, staff will install the above ground RPZ.



Water Service Interruptions with Boil Water Notice (BWN)			
Month	Number of Service Calls Resulting in a BWN	Number of Customers Affected in the Month	Large Interruptions 50 Customer or More
May-22	2	40	
June-22	1	16	
July-22	1	60	Columbus Way-60
Aug-22	2	32	
Sept-22	4	91	
Oct-22	422	4	Lamplighter-294
Nov-22	0	0	
Dec-22	3	59	
Jan-23	5	248	Mimosa-85/ Royal Marco Way 112
Feb-23	3	116	Stone Court-51
March-23	4	71	Marco Academy
April-23	1	16	



Treatment Plant Data

Starting Date: **3/1/2023**

Rain Fall for Time Period **1.20** Inches

Ending Date: **3/31/2023**

Average Daily Flow (ADF)

Aquifer Storage & Recovery

Million Gallons per Day (MGD)

ASR - Injection Avg. Daily Flow **0.00** MGD

Mar-23

ASR - Recovery Avg. Daily Flow **1.81** MGD

"U" Undetected - results below detection limit

Marco Island Drinking Water

Combined Consumer ADF **10.6** MGD

NWTP Consumer ADF **3.75** MGD

SWTP Consumer ADF **6.85** MGD

Max Day	Max Day	Flow
3/27/2023	12.12	MGD
3/6/2023	4.69	MGD
3/30/2023	7.85	MGD

Finished Water Testing

Minimum Chlorine Residual **3.30** mg/L

Maximum

Minimum

Maximum

Minimum

Turbidity	0.01	0.01 NTU	Chlorides	166	132 mg/L
Total Dissolved Solids	438.00	312.00 mg/L	Color	8	1 mg/L
P-Alkalinity	6.00	3.00 mg/L	Phosphate	0.82	0.68 mg/L
M-Alkalinity	40.00	34.00 mg/L	Ammonia	7.72	0.6 mg/L
Cal-Hardness	100.00	80.00 mg/L	Aluminum	0.06	0.02 mg/L
Total Hardness	136.00	108.00 mg/L	pH	9	8.74 SU

Mar-23

Wastewater - RWPF

Monthly Testing

Average Flow

Monthly Max Day

Influent

Effluent

Influent	2.77 MGD	3/18/2023	2.99	BOD	293.2	6.72 mg/L
Reuse	2.75 MGD	3/13/2023	3.03	TSS	203.6	0.6 U mg/L
Deep Well	0.058 MGD	3/19/2023	0.279	Total N	NA	7.12 mg/L
				Total P	8.48	4.24 mg/L