

FWEA Manasota Chapter

Vol 29 – March 2017

Message from the Steering Committee

by Manasota Chapter Vice Chair
Mike Nixon, McKim & Creed, Inc.

Last week Manatee County hosted FWEA Manasota members for a facility tour of the County's Biosolids Dryer Facility. This unique facility runs on landfill gas and processes all the biosolids generated at the three Manatee County Water Reclamation Facilities. The end products and waste streams are beneficially reused or recycled, which saves the County money and reduces environmental impact. Chris Collins and Chuck Froman of the Manatee County Utilities Department led the tour. Chris explained how the system works and its complexity, challenges during the first years of operation and lessons learned since it was commissioned in 2008. After the overview presentation and refreshments in the County's new maintenance building, the group rode over to the dryer for the tour to begin. The dryer facility is an impressive facility and very well run. All of the attendees left with a better

understanding of operation and design of these types of facilities. The Manasota chapter gives a big thank you to Chris Collins and Chuck Froman for hosting and leading the tour! This event was free to attendees thanks to both event sponsors, Kimley-Horn and King. If local utilities are interested in hosting a facility tour, please in the future contact one of the steering committee members.

Please join the Manasota chapter for these upcoming events! The next joint luncheon with FSAWWA Region X will be at a new location. It will be at the SWFWMD Sarasota Service Center on Fruitville Road on April 7th. This luncheon will include the always popular drinking water competition. See luncheon section of the newsletter for more details. We are also planning our next Kayak Event which will be at Oscar Scherer State Park in May. This event is a great way to enjoy the beautiful spring weather and see some of the area's natural water resources with other water professionals. We encourage kids and families to attend as well. Be on the lookout for event details event and registration.



Members in front of Manatee County's Biosolids Dryer Facility

Calendar of Upcoming Events

MARCH

- 2 FWEA Manasota Chapter Luncheon, Sarasota
- 8 FES Myakka Chapter Luncheon, Sarasota
- 16 ASCE Suncoast Chapter Luncheon, Sarasota
- 22 APWA Suncoast Branch Monthly Breakfast, Sarasota
- 23 FWEA West Coast Chapter Annual Roundtable Luncheon, Tampa
- 29 FSAWWA Region X/Region IV "Emergency Operations for Utilities", Sarasota

March

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

APRIL

- 5 FDEP Environmental Services Business Expo and Drinking Water Training Session, Ft. Myers
- 7 FWEA Manasota/FSAWWA Region X Joint Luncheon, Sarasota
- 12 FES Myakka Chapter Luncheon, Sarasota
- 20 ASCE Suncoast Chapter Luncheon, Sarasota
- 23-26 Florida Water Resource Conference, Palm Beach
- 26 APWA Suncoast Branch Monthly Breakfast, Sarasota

April

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

MAY

- TBD FWEA Manasota Chapter Kayak Event, Osprey
- 12 FES Annual Awards Banquet, Bradenton
- 20 ASCE Suncoast Chapter Annual Gola Tournament
- 24 APWA Suncoast Branch Monthly Breakfast, Sarasota

May

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Ten Years After – A Utility’s Approach to Changing the World

Jennifer Desrosiers, Utilities Business Manager, City of North Port, Florida
Hal Schmidt, P.E., BCEE, Southeast Wastewater Practice Director, MWH Now Part of Stantec, Winter Park, Florida

In the early 1970’s, the British Rock Group “10-Years After” wrote the song “I’d Love to Change the World”. Thirty-five years later, the City of North Port, began their planning to do just that - change the way they treat their wastewater and better manage the resources from their wastewater treatment facility.

In 2005, the City embarked on a program to improve their effluent quality, reduce the energy used to treat the wastewater, and maximize the use of reclaimed water. The City limits encompass an area of approximately 103 square miles (mi²) of which approximately 45% of that area is designated within the City’s Urban Service Area Boundary. Currently the City’s wastewater system extends to approximately 25% of the Urban Service Area, leaving a majority of the developed lots relying on onsite septic tank/drainfield systems for wastewater treatment and disposal.

Due to the sporadic nature of the development within the City’s Urban Service Area it was difficult to project wastewater flows, as well as capital infrastructure planning. However, as the City matured, the wastewater infrastructure aged, and demands increased, it was quickly realized that their facilities must be examined in order to plan an organized and structured approach to expansion.

In 2005, the City’s Utilities Department had to decide how to expand their wastewater facilities to meet the growing demands of the region, which were growing at double digit rates. To account for that growth, the City decided to upgrade and expand their water



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resources recovery facility (WRRF) with three primary goals:

- Reduce energy and residuals management costs. Power costs to treat the wastewater represented nearly 45% total operating costs, and the disposal of the residuals that are generated from the biological process represented approximately 28% of the operating costs associated with the facility.
- Increase availability of reclaimed water and its usage. There were no automatic controls to deliver the reclaimed water to the storage facilities, and the City relied heavily on the golf course managers to call and request that reclaimed water be delivered. Moreover, the reclaimed water transmission and distribution system extended only to less than 5% of the Urban Service Area, and at the time only included bulk users.



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- Reduce the total nitrogen in reclaimed water.
Although nitrogen and phosphorus limits were not permit requirements in 2005, at that time there was a concern that proposed nutrient limits may become a reality for facilities that produce reclaimed water.

Five-years later, the City went a step further and examined methods to reduce the cost of treating the residuals – a by-product of their treatment process.

The City evaluated a number of treatment processes, and settled on the MLE process with deep bed filters that could be converted to denitrification in the future should more stringent nutrient limits be set. Construction of the improvements to the City’s WRRF began in April 2007. Partnering with the general contractor was a major component of the construction contract. This included the pre-purchasing of major pieces of equipment and the development of additional value engineering concepts to reduce the overall construction cost. Construction was complete on June 2009, 4-months ahead of schedule, and nearly \$764,000 under the original bid amount. Provided in Figure 1 is an aerial of the completed 2005 Capital Program upgrades and expansion of the City’s WRRF.

In 2012, the City began investigating a number of options to manage the residuals that are generated within the City’s treatment process. At that time, the City contracted the dewatering and land disposal of the residuals generated at the WWTF to a private hauler. The hauler used a mobile centrifuge unit to dewater the residuals. The centrate from the dewatering process was returned to the WRRF for retreatment; and, the dewatered residuals were disposed of at a landfill. The City was spending approximately \$30,000 each month or \$360,000 annually to contract the dewatering and disposal of the residuals from the WWTF.

Similar to the evaluation that was performed as part of the 2005 Capital Program for the upgrades to the City’s WRRF, an evaluation of various dewatering alternatives was performed. Pilot testing of the three best rated dewatering processes were then performed

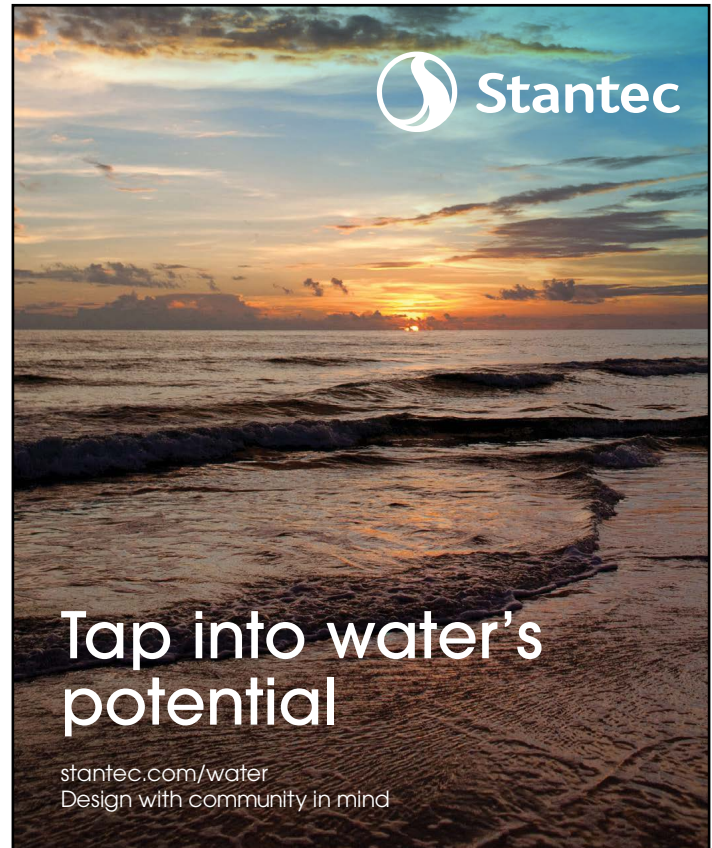


Figure 1: WRRF at Completion of Construction

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to confirm treatment performance. Based on the subjective analyses and pilot testing performed, centrifuge dewatering was determined to be the best dewatering process for the City. In September 2014, the dewatering facilities met the performance requirements (dewatered cake, polymer usage and solids capture) were brought on-line at a cost of \$1,072,000. Illustrated in Figure 2 is the dewatering facilities that were installed.

RESULTS

The results of the improvements associated with the liquid treatment processes (2005 Capital Program) that have been fully operational since June 2009, and the results from the improvements to the solids handling facilities (2012 Capital Program) that have been fully operational since September 2014, have all been positive. Noted below are the results of the goals that were set by the City in 2005.



Figure 2: Sludge Dewatering Facility

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Nitrogen Reduction

Prior to the start-up of the WRRF, the influent TN averaged 20.88 mg/L. Since start-up, the TN concentration in the effluent has averaged approximately 7.47 mg/L, representing a reduction of approximately 64.8% of the TN in the reclaimed water that is delivered to the City’s customers or discharged down the deep injection well.

Power Requirements

By and large, it can be said that the greater the required level of treatment – the greater the energy demand, which would be expected when one is improving the effluent quality. The process conversion, replacing coarse bubble with fine bubble diffusers, new energy efficient blowers and DO control for the aeration supply have resulted in an energy savings of nearly 40%, which resulted in an average monthly savings of approximately \$13,500 per month. More telling is that these energy savings have remained stable, even though the influent flow and

loads to the City’s WWTF have increased nearly 35%, since the start-up of the .

Residuals Management Improvements

The improvements to the residuals management facilities were primarily implemented because of the costs associated with the private hauler dewatering and hauling the dewatered sludge off-site. Since the dewatering facilities were brought online in September 2014 and the City has consistently been able to attain a dewatered solids cake of greater than 20% solids. Since the permanent dewatering facilities have been put on-line, the City has been spending approximately \$14,000 per month to dewater and dispose of the solids produced, inclusive of labor, chemicals and power, resulting in a monthly savings of approximately \$16,000 or \$192,000 annually.

Increased Reclaimed Water Usage

The City has been providing public access reclaimed water since the late 1980’s to golf courses and residential irrigation systems. In 2014, as part as a result of the economic recession, the City lost one

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of its major users, the Sable Trace Golf Club, which had a permitted capacity of 600,000 gallons per day (gpd). Since September 2009, the reclaimed water represents on average, nearly 45% of the wastewater treated. Even with the loss of a major reclaimed water customer, the monthly reclaimed water usage increased from approximately 16.8 million gallons (MG) to 27.7 MG, an increase of nearly 67%.



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If you are interested in joining the Steering Committee, please contact us.

We are currently seeking Utility Liaisons and additional At-Large Members.



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A \$10 recommended donation is requested from all participants. Children 8 and under walk for free.

The families of Peru THANK YOU for your support.

HOW YOU CAN HELP

VOLUNTEER

Gather members of your club to help out at the event, leading a team of walkers, registering participants, or assisting with activities at the event.

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DEP Meet-Ups Monthly Workshop



Who Should Attend:

Environmental consultants, waste generators, public utilities, engineers, manufacturers and other interested parties

When:

Wednesday, April 5, 2017

Training: 8 a.m. - noon

Expo: 1 - 5 p.m.

Location:

Joseph P. D'Alessandro

Building, Room 165

2295 Victoria Ave.

Fort Myers, FL 33902

REGISTER
NOW!

Environmental Services Business Expo and Drinking Water Training Session

About the Expo:

You are invited to this free Environmental Services Business Expo, which offers the opportunity to meet the businesses that help you meet your environmental needs. This networking opportunity will help facilitate discussion between communities, businesses and government agencies in identifying actions that can stimulate economic growth and regional cooperation while protecting natural resources. DEP staff will also be available to answer any questions.

Expo vendors include:

A-C-T Advance Compliance Technology	Florida Fish and Wildlife Conservation Commission
Advance Environmental Laboratories	GHD
Applied Polymer Systems, Inc.	Johnson Engineering
AquaFiber Technologies	Lentus Products
Biovation Environmental Services	LMK Pipe Renewal
Clark Environment	MWaste
Classic Controls	R.H. Moore & Associates, Inc.
Covanta Energy	TrapBag
DRMP	Turrell, Hall & Associates
Earth & Turf Reps/Profile Products	UF-TREEO
EarthBalance	US Ecology
Environmental & Technical Services	Waste Connections, Inc.
Florida Rural Water Association	Waste Management

About the Training Session:

Florida Rural Water Association will be conducting an Alternative Oxidants for Disinfection Byproducts Compliance training class. For more information and to register for the training session, click [here](#).

For additional information, please contact
Martha.Avila@dep.state.fl.us or
Terry.Cerullo@dep.state.fl.us

Joint Luncheon Meeting with FSAWWA Region X – April 7, 2017

Sarasota and Manatee County Water Modeling Analysis

Laura Baumberger, P.E., Carollo

Manatee County and Sarasota County own and operate water distribution systems that serve residents throughout unincorporated Manatee and Sarasota counties. Manatee County currently sells up to 6 million gallons per day (mgd) of potable water to Sarasota County, which is received at three interconnects between the two distribution systems. Based on the current purchase agreement, the Manatee County reserve capacity (that can be sold to Sarasota County) decreases to 5 mgd in 2020 and drops to 0 mgd after March 31, 2025.

Each County has a hydraulic water distribution system model created with Bentley modeling software. The Sarasota County water model, which was recently converted to Bentley WaterGEMS, was updated and calibrated, and Manatee County's WaterGEMS model was also recently updated and calibrated.

Due to interest in the continued transfer of water through the existing interconnects in 2025 and beyond, the Counties decided to merge their hydraulic water models to evaluate potential infrastructure options. The combined model was used to evaluate alternatives for maintaining flow at the interconnects between the Counties under a variety of scenarios. The various planning periods used in the study include 2016, 2025, 2035 and 2040.

The merged model was used to evaluate water age near the three interconnects and various operational strategies to allow distribution system water quality, as characterized by water age, to be used in future planning and decision analysis.

This presentation consists of high-level discussion of both Counties on the overall purpose and benefits of the project, future water supply planning options, as well as a detailed discussion on the process of updating, calibrating, and merging the hydraulic models. It will discuss the challenges and solutions of merging two complex water models into a single operational model to provide the best regional solutions to water supply and delivery to customers. Results of the alternatives analysis for transferring water between the Counties and discussions of water age also will be presented.

Laura Baumberger, PE, Carollo

Ms. Baumberger has 14 years of experience in the water and wastewater industry. She received her Bachelor's and Master's Degrees in Civil and Environmental Engineering from South Dakota State University. Her work focuses on master planning, hydraulic modeling of water distribution and wastewater collection systems, and asset management.

JOINT FWEA MANASOTA & AWWA REGION X CHAPTER LUNCHEON MEETING

SWFWMD

Sarasota Service Office

6750 Fruitville Road, Sarasota, FL 34240
Registration - 11:30 • Lunch and Program - 12:15

Lunch will be provided.

Pre-registered Members: \$15 • Pre-registered Non-members: \$20 • Walk-in: \$25

You can register online at www.fsawwa.org or register by phone, fax, or e-mail to Donna Metherall
Ph: 407-957-8443 • Fax: 407-957-8415 • E-mail: donna@fsawwa.org

The Manasota Chapter is in search of Project Spotlight articles for future newsletter editions. Chapter sponsors are encouraged to submit an article highlighting a local project. Please contact Samantha Nehme at samantha.nehme@stantec.com or 941-921-4183 for more information.