



# PACIFIC NORTHWEST CLEAN WATER ASSOCIATION LOWER COLUMBIA SECTION

QUARTERLY E-NEWSLETTER

Page 1

## MESSAGE FROM THE PRESIDENT

Greetings -

This is the last “President’s Message” that I get to write. My two years as President for the LCS chapter is coming to an end. I am grateful for the opportunity granted to me to learn about, promote and showcase some of the great operators, projects and treatment plants in this region. The PNCWA LCS Section is a great resource and I encourage you all to get involved either by hosting a tour, nominating a coworker for our annual operator awards or participating in an event.



Speaking of participating, we are sponsoring a tour of the Newberg WWTP in a few days where you can learn all about their excellent biosolids composting program. I know you are thinking, “What could be more exciting! You had me at biosolids program.” So see page 3 for additional information on the tour.

Before this message ends, I wanted to thank the LCS directors and officers for making my Presidency so easy and enjoyable. Joel Borchers, Mike Kebbe, Jeff Hart, Rob Peacock, Bhargavi Maremanda, Tim Munro, Greg Thiel, Jeff Coyne, Jeanette DeCastro and Hunter Bennett-Daggett have all contributed immensely to this Section. They deserve more accolades than I can dole out.

### Inside this issue:

I am grateful for the experiences I have gained from being the LCS president and look forward to participating in the Section in the future.

**Dana Devin-Clarke,**  
**President Lower Columbia Section**  
([DanaDevin-Clarke@KennedyJenks.com](mailto:DanaDevin-Clarke@KennedyJenks.com))

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## What is Pacific Northwest Clean Water Association (PNCWA)?

PNCWA is a professional organization for people in clean water industries in the states of Idaho, Oregon, and Washington. Members include wastewater treatment plant operators, consulting engineers, scientists, water and wastewater treatment equipment manufacturers and representatives, and students.

### Mission Statement:

*"Pacific Northwest Clean Water Association (PNCWA) is dedicated to preserving and enhancing the water quality in the states of Idaho, Oregon, and Washington. We promote the technical development of our members, the dissemination of information to the public and the advancement of science needed to protect the water environment."*

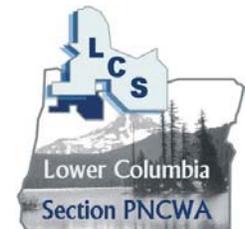


## What is Lower Columbia Section (LCS)?

The Lower Columbia Section is one region of the PNCWA encompassing Portland (OR) and surrounding areas of Northwest Oregon.

### What's Going On in the Lower Columbia Section?

See what's new, find opportunities for training, and meet your officers at our website. We are always looking for people interested in getting involved. Check out the Lower Columbia Section's website and the PNCWA at <http://lowercolumbia.pncwa.org>.



## What is the Young Professionals (YP) division?



The Young Professionals division of the PNCWA LCS is open to anyone under 35 years of age or with less than 10 years of experience in the clean water industry. LCS's YP events are held quarterly and expose rising professionals to the fundamentals of wastewater treatment technology. Industry professionals are encouraged to attend as well. Each event is designed to promote learning specific to our industry. Events range from touring municipal wastewater treatment plants, breweries or even happy hour events for networking. If you have an event you would like to suggest or to learn more about the PNCWA, please contact the YP Chair:

Hunter Bennett-Daggett ([hunter.bennettdaggett@tetrattech.com](mailto:hunter.bennettdaggett@tetrattech.com)) .

More information on events, as well interesting news bits from around the web can be found on the group's Facebook page at [www.facebook.org/LCSYP](http://www.facebook.org/LCSYP).

**"A young professional is anyone under 35 years of age or anyone with less than 10 years of experience."**

The PNCWA LCS Chapter Invites you to...



# Tour the Newberg Wastewater Treatment Plant



**WHEN:** Wednesday, March 30<sup>th</sup>. 11:30 am - 1:00 pm

**WHERE:** 2301 NE Wyooski Rd, Newberg, OR 97132.

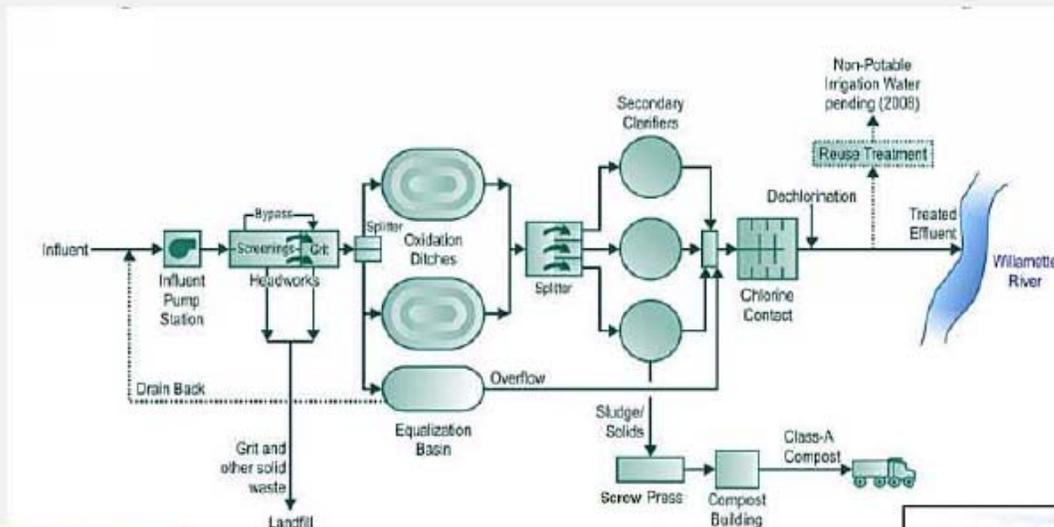
**BRING:** Hard hat, safety vest and closed toed shoes

**Please RSVP to**

**[DanaDevinClarke@kennedyjenks.com](mailto:DanaDevinClarke@kennedyjenks.com)**

## Tour Background:

*The City of Newberg Treatment Plant is a Class IV oxidation ditch type activated sludge plant with Class A in-vessel biosolids composting. The City sells its compost to the public under the brand NewGrow*



## MEMBER SPOTLIGHT: Jeanette Decastro

### How are you involved with the LCS?

My involvement with Lower Columbia Section (LCS) has been as a student, (trying to corral campus involvement), a Young Professional (YP) – Engineering Technician, and attending facilities tours. I joined PNCWA after a strong recommendation by a former mentor. I was the PNCWA inaugural scholarship winner in 2010, and I've had the opportunity to volunteer at the PNCWA Conference in several years since. I have also connected with other fantastic mentors as an LCS member along the way. My goal is to find other ways to contribute as a professional as I develop in this industry.



### What are your Career Achievements to Date?

I am relatively new in my career. My achievements include ODOT General Construction Inspection certification, and next month I will gain a CESCL (Certified Erosion Control and Sediment Lead) certification. My favorite achievements are obtaining compliance with regulations using education and problem-solving. I prefer to work with permittees to find ways to follow ROW and ESC standards without needing to use Stop Work orders or levy extra inspection fees. This can be more challenging than it sounds!

### What does a typical day look like for you?

I don't have a typical day; every day is different! I perform Erosion and Sediment Control (ESC) inspections at active sites, inspect public and private infrastructure projects, update GIS asset data, issue addresses, fulfill public records requests, use AutoCAD to update as-built and detail drawings, inspect water quality facilities (stormwater BMPs), and review, issue, and inspect restoration for Right-of-Way (ROW) permits.

### What do you feel is your impact on your community or the industry as a whole?

My impact on the community and on the industry is not glamorous, and is in small increments. To paraphrase the parody trailer "*Infrastructure*": "If anything exciting happens, we've done it wrong." My success is measured in temporary traffic control with no squealing tires or honking. It is the lack of rill or gully erosion forming in soil on an active grading site. It is utility locates painted in the correct locations. It is citizens finding a safe detour when traveling on sidewalks. It is well-installed asphalt patches and concrete panels, in order to maintain the integrity of municipal assets.

INFRASTRUCTURE <https://www.youtube.com/watch?v=XTopVilhVVM> (Rated PG-13 for language, please use caution clicking on this YouTube link at work!)

### Do you volunteer? If so, with what organizations?

I volunteer here and there; most recently at the [Oregon Food Bank](#). My favorite organizations to support include [Water for People](#), [Stockholm Jr. Water Prize](#), and [Oregon Tradeswomen, Inc.](#)

If you have to pick just one recommendation, I encourage you to contribute to the [PNCWA Scholarship Fund](#). It was a boon to me; school is increasingly expensive. It also sends a clear message to students: WEF and PNCWA support you, and are committed to helping you succeed in this industry.

## MEMBER SPOTLIGHT: Jeanette Decastro

What is the most rewarding professional experience you have had?

As an intern, I reviewed a LOT of CCTV sewer inspection video. It's been awesome to see some of those pipes, in dire need of maintenance, included in Capital Improvement Projects. I'm not personally involved and know of the projects when driving around town, yet – I know I contributed a tiny little bit to their rehab. Those contributions are rewarding.

What is the coolest project you have worked on?

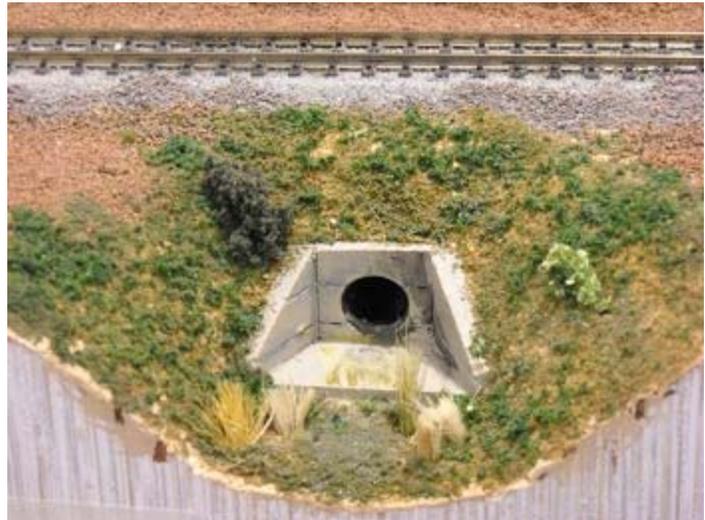
One of the coolest projects I've had the opportunity to work on was a culvert upsize project. The culvert crossed a railroad line, and included a bored casing adjacent to the existing, undersized culvert. It was one of my first projects inspecting from start-to-finish, and so I also got to see how well the vegetated corridor restoration went after the contractor and their heavy machines did the job and left. Quite the improvement.

What is your favorite place in the Northwest?

My favorite place in the NW is Portland, because I was born here. Totally biased – it's my stomping ground. I love visiting Bend, the Oregon Coast, Seattle, Boise, and Pendleton. This summer I plan to visit Silverton and The Dalles.

If there was a movie produced about your life, who would play you and why?

If a movie was produced about my life, I would choose Melissa McCarthy because of her sense of humor. It is important to find the joy and comedy in each day, particularly when dealing with enforcement issues.



Picture from: [modelbuildings.org](http://modelbuildings.org)

What is one of the aspects you enjoy about participating in the LCS chapter?

One of the exciting developments I've seen is co-sponsored events with AWWA (American Water Works Association) and even APWA (American Public Works Association). I enjoy collaboration and pooling our strengths to benefit PNCWA members, and I hope it's a trend that continues.



## WASTEWATER MATH CHALLENGE:

Recently, the LCS started giving away a \$20 Starbucks gift card to a selected participant of the Wastewater Math Challenge who answered all the Math Challenge questions correctly. Solutions to last quarter's challenge is on Pages 16.

### The Rules:

- Submit your solutions to [JeffHart@KennedyJenks.com](mailto:JeffHart@KennedyJenks.com)
  - Participants with the correct solutions will be put in a hat
  - One participant with the correct answers will be drawn from the hat, that person will **win the \$20 gift card to Starbucks**
1. You were delivered 1500 gallons of 85% solution. Your delivery equipment is sized to handle a 65% solution. How much water do you need to dilute the solution down to a 65% solution?
  2. You have 15 MGD of flow coming down interceptor A. This flow stream has a BOD<sub>5</sub> concentration of 350 mg/L. Interceptor B has a flow stream of 5 MGD and a BOD<sub>5</sub> concentration of 500 mg/L. These two interceptors mix together before coming into your treatment facility. If these are the only flow components coming into the plant, what is the plant influent flow in MGD and the plant influent BOD<sub>5</sub> concentration in mg/L?
  3. How many pounds of pure Calcium Hypochlorite do you need to add to make 50 gallons of 12.5% chlorine solution knowing that there is about 65% of available chlorine in Calcium Hypochlorite?
  4. How many pounds per day of pure Calcium Hypochlorite will you use to maintain a 2 mg/L chlorine concentration, knowing that the chlorine demand is 3 mg/l and the average daily flow in the plant is 5 MGD?

## 2015 Treasury Report:

The treasury of the Lower Columbia Section is in good shape. Last year we took in \$860 dollars from generous supporters of the section in the Portland Metro which included, Carollo Engineers, MWH, Kennedy/Jenks Consultants, and Brown and Caldwell. These entities have been supporting our organization efforts and also sponsoring events as applicable. We also raised an additional \$860 in revenue through a hosted workshop at CCC. In the calendar year 2015, the section also spent \$1,553.30. This brought our balance to \$6,008.25. Many of our expenses were the cost of hosting two tours, a student and yp happy hour as well as funding a scholarship for students attending the Clackamas Community College operator program. The section also spent \$75 in continuing education units (CEUs) fees which help the wastewater community acquire professional development hours.



## Gresham WWTP

### From Grease to Kilowatts: Receiving FOG to Become Energy Net-Zero

The City of Gresham is a progressive community that has grown from a rural farming community to a flourishing urban area that provides a high quality of life for its residents and businesses. In 2009, the City adopted a sustainability policy that included reducing greenhouse gas (GHG) emissions by eighty percent by 2050, reaching 100 percent renewable energy by 2030, achieving zero waste for City operations by 2020, protecting natural resources, and reducing and eventually limiting toxins.



**Photo 1:** FOG Receiving and Feed System are designed to require no plant staff involvement.

The City had purchased its first modern cogenerator in 2005, which burned biogas produced in the digesters to generate electricity and heat. The first 400-kW unit could power 55 percent of the entire wastewater treatment plant (WWTP). Following the success of the first generator and with the adoption of new goals, the City collaborated with Carollo Engineers to achieve energy net-zero status at their wastewater treatment plant (WWTP) in 2012. To achieve the City's goals, a Fats, Oils, and Grease (FOG) receiving station was constructed. FOG injection increased the biogas production at the WWTP from approximately 180,000 cubic feet per day to greater than 300,000 cubic feet per day. This biogas is utilized in the plant's expanded cogeneration system (a second 400-kW cogenerator). The power produced by the cogenerators can now power up to 92 percent of the Gresham's WWTP power requirements.

In parallel efforts to the FOG and cogeneration projects, the City reached an agreement with Portland General Electric (PGE), allowing the City to return excess energy to the grid during periods of low consumption or high production. In turn, the plant uses the excess energy it previously supplied when needed. With this agreement, the WWTP uses grid power only when a cogeneration unit is unable to keep up with the demand or undergoing maintenance.

The FOG and cogeneration project was completed in 2015 with funding from the Energy Trust of Oregon (ETO) and Oregon Department of Energy (DOE) and Oregon Economic

## Gresham WWTP

### From Grease to Kilowatts: Receiving FOG to Become Energy Net-Zero

Community Development Department (OECD). The City's first net-zero month was March 2015. Since then, the plant saves the City an estimated \$500,000 per year in avoided electrical costs, while generating around \$300,000 per year in FOG tipping fees from regional food establishments. This is primarily due to increased cogeneration production made possible by FOG injection.

The Gresham WWTP was the first utility in the Pacific Northwest and the second in the country to become energy net zero, making it a shining example of innovation in wastewater treatment. The City's success in achieving energy-neutral status is the direct result of the City's ambitious vision. The capital cost of FOG and cogeneration projects has a payback of six years after factoring in grants and green tags, as well as power savings.



**Photo 2:** The New Cogenerator has almost doubled gas production at the City's Wastewater Treatment Plant

## CALL for 2015 AWARD APPLICATIONS/NOMINATIONS



PNCWA Lower Columbia section recognizes exceptional service and performance in the wastewater industry every year.

Awards are given for the Plant of the Year, Treatment Plant or Collection Systems Operator of the Year, and the Project of the Year.

The Lower Columbia Section (LCS) of the Pacific Northwest Clean Water Association (PNCWA) is now accepting nominations for the following awards:

- A. Wastewater treatment plant of the year,
- B. Treatment plant operator of the year,
- C. Collection system operator of the year, and
- D. Project of the year.

These awards are in recognition of exceptional service and performance in the wastewater industry. Eligible for awards are all treatment plants, collection system and treatment plant operators, and wastewater related capital projects in the counties of: Columbia, Multnomah, Washington, Yamhill, Clackamas, Hood River and Wasco (i.e. the LCS Service Area).

For **Project of the Year** or **Plant of the Year** awards, the facility will have demonstrated one or more of the following: innovation, sustainability, excellence in preserving water quality, safety, and public service.

For **Operator of the Year** (OYA) awards, the Operator will have demonstrated excellence through one or more of the following: section activities, safety, certification, training, plant performance/collections systems performance or public relations.

Please consider nominating your coworker, staff member, plant, or project for an award this year to recognize their hard work and achievement. If you need assistance in completing a nomination packet, please contact Monica Stone assistance. We are happy to help.

## How to submit a 2015 AWARD Nomination?

Nominations may be made by PNCWA members or any operator, manager, supervisor, city engineer/official, district board/council member, consulting engineer or manufacturer representative.

### How to submit a nomination?

Simple! First, contact Monica for a nomination packet. She will provide you with a template that may facilitate the application process.

MAStone@olsd.net

**DEADLINE:** All award nominations are due to Monica by April 15, 2016.

## A. Plant of The Year 2015:

To nominate, demonstrate that the award criteria have been met or supply the following information:

1. NPDES or WPCF permit compliance for 2015
2. O&M performance (including staff training, certification, safety program, energy conservation, industrial pretreatment, biosolids management, lab management, maintenance management, etc.)
3. Innovative techniques or superior application of established treatment techniques
4. Significant improvements in operations, maintenance, and plant management made in 2015
5. Other significant accomplishments
6. Support of the Lower Columbia Section (e.g. hosting meetings, and allowing employees to attend section meetings, conferences, and workshops).

Nominations should include a Plant Profile that includes a description of the treatment process, design flows and loadings, and current actual flows and loadings. Photos are encouraged but not required. The nomination must include a letter of recommendation from the person nominating the plant that addresses the above criteria and any other relevant factors.

## **B. /C. Treatment Plant or Collection System Operator of the Year 2015:**

Nomination must include the following information:

1. Your full name.
2. Nominee's full name.
3. Which award (WWTP or Collections).
4. Nominee's plant and system information.
5. Your phone number, mailing address, and email address (if available).
6. The daily, weekly, and monthly operations and maintenance duties of the nominee.
7. Operational challenges/problems and how the nominee assisted in solving these problems.
8. Recent Short School courses or participation, correspondence courses, college courses, or other work related training.
9. Nominee's safety involvement.
10. Any other noteworthy activities related to the wastewater field.
11. Any other qualities (job related or otherwise) that make this individual outstanding among his or her peers.

The information submitted should be as detailed as possible. Photos of the nominee, plant, equipment, etc. are not required, but strongly encouraged.

## **D. Project of The Year 2015:**

This award is in recognition of the role capital projects play in the wastewater industry. Awards will be given to the owner (municipality, service district, or other agency), design engineering firm, and prime contractor of the project.

### **Eligible Projects:**

1. Capital projects relating to wastewater collection & treatment, stormwater collection & treatment, effluent reuse, environmental mitigation, or related fields
2. Project must be within the LCS service area.
3. Projects must have been completed between 1 January and 31 December 2015.

### **Nominating Criteria:**

1. Benefit to the environment
2. Benefit to the public
3. Application of new techniques or innovative application of existing techniques
4. Unique features and/or challenges in design, construction, or financing
5. Stakeholder/public involvement
6. Cost control
7. Quality control
8. Coordination between entities involved (owner/designer/builder/others)

Nominations should include a narrative description of the project, including purpose, scope, history, financial information (engineering estimate, budget, final cost, etc.), and how the project meets the criteria listed above. Nominations should include the names of project owner (municipality, service district, etc.), design engineering firm, prime contractor, and the names of the responsible parties from each entity. Photos are encouraged but not required.

## SUPPORTERS OF PNCWA- LOWER COLUMBIA SECTION

Thanks to these sponsors!

The Lower Columbia Section strives to provide educational opportunities for those in the field of wastewater treatment. We work to do that by offering social events, scholarships, workshops and promoting plant tours around the area. None of this would be possible without the generous support of our sponsors.

On behalf of the entire Lower Columbia Section of the Pacific Northwest Clean Water Association, we would like to thank:



Brown and Caldwell



Carollo Engineering

**Kennedy/Jenks Consultants** Kennedy/Jenks Consultants



**MWH** MWH

**ADVERTISING OPPORTUNITIES ARE NOW AVAILABLE!**

Contact Jeff Hart at [JeffHart@KennedyJenks.com](mailto:JeffHart@KennedyJenks.com)

for information on sponsorship and advertising.

## PNCWA – Lower Columbia Section CONTACTS

	Name	Officers	E-MAIL
	<b>Dana Devin-Clarke</b>	President	<a href="mailto:DanaDevin-Clarke@KennedyJenks.com">DanaDevin-Clarke@KennedyJenks.com</a>
	<b>Open</b>	Vice President	
	<b>Bhargavi Maremanda</b>	Secretary-Treasurer	<a href="mailto:BMaremanda@carollo.com">BMaremanda@carollo.com</a>
	<b>Joel Borchers</b>	Website Chair	<a href="mailto:BorchersJ@CleanWaterServices.org">BorchersJ@CleanWaterServices.org</a>
	<b>Tim Munro</b>	Scholarship Chair	<a href="mailto:Tim.Munro@ci.mcminnville.or.us">Tim.Munro@ci.mcminnville.or.us</a>
	<b>Jeff Hart</b>	Newsletter Chair	<a href="mailto:JeffHart@KennedyJenks.com">JeffHart@KennedyJenks.com</a>
	<b>Hunter Bennett-Daggett</b>	Young Professionals Committee Chair	<a href="mailto:Hunter.BennettDaggett@tetrattech.com">Hunter.BennettDaggett@tetrattech.com</a>
	<b>Monica Stone</b>	Awards Chair	<a href="mailto:MAStone@olsd.net">MAStone@olsd.net</a>

## WEF/PNCWA/LCS – Mark your Calendars!



When	Where	What	Affiliation	Contact
Mar 30, 2016	Newberg, OR	Newberg WWTP Tour	LCS	<a href="mailto:danadevinclarke@kennedyjenks.com">danadevinclarke@kennedyjenks.com</a>
April 4th, 2016	Ontario, OR	Eastern Oregon Operators Conference	PNCWA	<a href="http://events.r20.constantcontact.com/register/event?oeidk=a07ec1qe2czb91a9228&amp;llr=nhumnclab">http://events.r20.constantcontact.com/register/event?oeidk=a07ec1qe2czb91a9228&amp;llr=nhumnclab</a>
May 4, 2016	Boise, ID	PNWS-AWWA Conference	AWWA	<a href="http://www.pnws-awwa.org/training-events/conference">http://www.pnws-awwa.org/training-events/conference</a>

Contact Jeff Hart at [JeffHart@KennedyJenks.com](mailto:JeffHart@KennedyJenks.com) to advertise your event in our newsletter.

## Want to feature your project in our newsletter? Just like "Grease to Kilowatts"?

If you have an interesting project, a new process, or are just plain proud of your plant, let us know. We can organize a showcase for your project. Contact Jeff Hart and let him know that you want to show off! (JeffHart@KennedyJenks.com)



Texting **LCS** to 42828 will allow you to add your email address to the LCS mailing list.

Or

You could scan this with your smart phone:



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We're on the web! <http://lowercolumbia.pncwa.org>

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**Are You Receiving  
this e-Newsletter  
in Error?  
Or  
Do Others in Your  
Organization Wish to  
Receive This Newsletter?**  
Either Way,  
PLEASE EMAIL Jeff Hart  
(JeffHart@KennedyJenks.com)  
THANKS!

**PNCWA-LCS MEMBERSHIP**  
It has its advantages!  
Are you not a member of  
WEF/PNCWA/LCS?  
Or do you know someone who needs to  
join?  
To get a membership application,  
visit [www.wef.org](http://www.wef.org)  
and click on "membership and careers"  
and then click "Join WEF"

## SOLUTIONS TO WASTEWATER MATH CHALLENGE FROM LAST QUARTER

1. An activated sludge plant receives an influent flow of 4.0 MGD, with a primary effluent BOD Concentration of 150 mg/L. The plant has four aeration basins each 60-ft long by 20-ft wide by 16-ft deep, with a MLSS Concentration of 2700 mg/L. Find the Food to Microorganism Ratio (F/M).

$$\text{Food} = 4 \text{ MGD} \times 8.34 \text{ lbs/gal} \times 150 \text{ mg/l} = 5,004 \text{ (lbs*mg)/d}$$

Micro- organisms

$$\text{Volume of AB} = 60 \times 20 \times 16 = 19,200 \text{ ft}^3$$

$$\text{Since there are 4 Aeration Basins: } 19,200 \text{ ft}^3 \times 4 = 76,800 \text{ ft}^3$$

$$\text{To covert cubic feet to gallons: } 76,800 \text{ ft}^3 \times 7.48 \text{ gallons/ ft}^3 = 574,464 \text{ gallons}$$

$$\text{To convert gallons to MG: } 574,464 \text{ gallons} \times \text{MG}/1,000,000 = .574464 \text{ MG}$$

$$\text{Micro-organism} = .574464 \text{ MG} \times 8.34 \text{ lbs/gal} \times 2700 \text{ mg/L} = 12,935 \text{ lbs*mg}$$

$$\text{Food / Micro-organisms} = 5,004 \text{ (lbs*mg)/d} / 12,935 \text{ lbs*mg} = .393403 = .39/\text{day}$$

2. If sludge loading to digesters is 12,000 lbs/day and the sludge pump only operates at 70 gpm, what is the daily runtime of the pump?

$$(12,000 \text{ lbs/day}) \times (1 \text{ gallons}/8.34 \text{ pounds}) \times (1 \text{ min}/70 \text{ gallons}) = 20.554 \text{ minutes/day}$$

$$\sim 21 \text{ minutes/day}$$