

March 2018

The Wastewater Insight



Rags, Leaves, Debris and FOG- what do they do to your Collection System and Wastewater Treatment Plant?

- ◇ Collection system
- ◇ Screening
- ◇ Equalization
- ◇ Primary
- ◇ Secondary
- ◇ Clarifier
- ◇ Digester



It is amazing to see what can make its way down through the **Collection system**.



All this debris, organics, fiber, & tissue can cause septicity, zooglea, black floc, odors as well as increased maintenance.



It is a bit hard to control what comes down through the collection system, but luckily screening at the plant should help protect pumps, wear and tear on equipment, maintenance as well as solids build up in aeration basins, clarifier and digesters.



While it sits in the collection system though it is not sterile. There are sufficient organics, so zooglea, fungi and bacteria will grow. You can use a small MicroBlock upstream in the lift stations to help break down FOG, but rags, debris and other

“things” are basically going to need to be physically pulled out of the system and as quickly as possible. The rule of thumb in wastewater is to keep it moving.



We started this month out with a new **Mystery Bug of the month!**

Check out our website for more photos of our new mystery bug!!!!

EnvironmentalLeverage.com

Once things wind up making their way through the collections systems, hopefully there are sufficient **Preliminary screens** at the wastewater treatment plant to protect the pumps, remove organic and inorganic solids, reduce some BOD and TSS and make it easier on the wastewater treatment plant.



Rags and debris
municipality



Grit,
cigarettes,
debris



Rags and debris municipality

Egg factory debris

Leaves and debris

What is unfortunate, most of these photos were taken pre-diaper wipes and hand sanitizer wipes. The amount of garbage that is flushed down the collection systems has probably doubled. Equipment can easily get blinded up or broken with such high levels of debris and solids. But, the more you keep up with maintenance on the screens, the easier it will be to treat in the secondary system as well as cheaper and more efficient.

In EQ tanks or lagoons same principle applies. Keep in moving, focus on the critical 5. If there are large amounts of debris, plastics, rags, gloves, etc., then go back upstream and address your screening.



EQ pond at a industrial
facility



Plastics facility



EQ pond at a canning
facility



Paper fibers and ink at a
boxboard plant

In Primary Clarifiers try not to hold solids too long. The longer you hold FOG and solids the easier it is for bacteria to start growing in there. This can lower the pH, increase sulfur compounds and odor control and put a higher oxygen demand on your biological system downstream. If you allow it to get too septic, you can also cause the growth of filaments, fungi and zooglea.



Grease balls at a pizza factory

Corrosion at a municipality



Lagoons: address the critical 5. If you are loading your lagoons with solids, go upstream and address with screening.

In facultative/anaerobic lagoons at meat plant



Aerobic lagoon at a coffee plant

Fixed film systems such as RBC, trickling filters, MBR or MBBR - these areas definitely need screening upstream or they easily can get blinded and cease to function properly. Also address the critical 5.



In a secondary aeration basin or any secondary biological system



If you see solids in aeration basins, you need to go upstream and address your screening or primary clarifier. Most large solids should already have been removed and only dissolved organics sent to your secondary biological system. These solids can easily cause septicity, filaments, fungi, zooglea, foaming, increase solids handling costs as well as electrical costs.

In clarifiers, if you see debris, go upstream and check your screening for maintenance. Clarifiers are not designed to handle solids that should be removed upstream in screens or primary clarifier. Solids in clarifiers can easily cause septicity, increase filaments as well as TSS carryover into final effluents.



Papermill clarifier and two municipalities

If you do not do a good enough job upstream, solids can easily wind up in **Digesters**.

All those inert solids sit on the bottom of the digester and cause septicity. This can not only cause the growth of filaments and zooglea, but impact your pH, cause higher polymer costs for dewatering, higher haul off costs for solids handling, and sometimes we have even seen the low pH cause false fecal coliform readings making it difficult to land spread biosolids.



Increased maintenance costs can easily build up trying to remove solids in the bottom of the tanks.



Municipal digester

Newsprint facility

Short of educating the users upstream not to throw garbage down into the drains or collection system, your job now seems to be to keep thing moving, address the critical 5. Use bioaugmentation if you can to break down organics and FOG.

Try to address the Critical 5 in every part of the system to avoid septicity and improper biological growth.



Please feel free to call our office if you need help with troubleshooting or bioaugmentation



We have just started to set up our schedule for public classes as we have quite a few private classes and audits scheduled already for 2018

Our first class which is almost sold out already is our Filamentous ID the Easy way

April

Filamentous Identification -The Easy Way™!

Illinois - Fox Lake

Village of Fox Lake Illinois

April 17th & 18th, Tues. & Wed., 2018

200 Industrial Ave

8am - 4:30pm both days

Fox Lake, IL 60020 USA

We have just set up two more classes for our 2-Day Biological Wastewater Process Control Seminar

June

2 Day Biological Wastewater Treatment Seminar

Florida - Tavares

Utility Administration Building - City of Tavares

June 11th & 12th, Mon. & Tues., 2018

1000 Captain Haynes Road

8am - 4:30pm both days

Tavares, FL 32778 USA

Our second class is not finalized yet but will be in Napa in July- stay tuned for more information.

Please let us know if you would like to set up a private class/audit at your own facility as our schedule is filling up quickly.



Did you guess what this was? This is a gram stain. Notice the short free floating Nocardia, zooglea and nutrient deficient bacteria.

January- Gram stain

Check out our website for more photos of our new mystery bug!!!!

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