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## Summer Wastewater Treatment Operational Problems

It's Texas summer again, and with this hot Texas weather there sometimes can be wastewater treatment problems. The most common problems encountered during the summer months are too old a sludge age resulting in deteriorated sludge solids quality (increased solids/TSS in the final effluent), filamentous bulking caused by too low an Food to Mass Ratio (FM Ratio) and odor control problems.

The sludge age problem results from an increased reproduction by the bacteria. Biological activity significantly increases during warm weather. For every increase of 10° C in temperature, the reproductive rate of the bacteria increases by one logs growth.

Therefore, to hold a desired food to micro-organism ratio and sludge age, you need to increase the wasting rate in an activated sludge plant. Without this, the plant will grow more bacteria and micro-organisms than the food (influent and solids) can support.

These changes can be seen in the FM Ratio, Mean Cell Retention Time (MCRT) and Sludge Retention Time (SRT).

If you don't make this seasonal adjustment, these are some of the things that can happen:

- The solids concentration in the system will grow faster than the food supply, causing the older bacteria (usually those on the inside of a floc) to starve to death and lyse.

Source for this newsletter: Environmental Leverage

## We Started this month with a new mystery Bug Of The Month



Can you guess what this is? Hint: commonly called **wheel animals** due to the corona around the mouth that in concerted sequential motion resembles a wheel (though the organ does not actually rotate).

*See answer on the back.*

## 2014 Reduced Lead and Copper Sampling Is Due Now

We handle bottles and testing for Lead and Copper Sampling. If you are unsure about your monitoring frequency requirements, go to [http://www.tceq.texas.gov/drinkingwater/chemicals/lead\\_copper](http://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper)

Look at 2014 System Instructions:

- 6M1 List and
- RED List

- BOD and nutrients are re-released from the dead cells. This can be critical in municipalities where the supernatant from sludge digesters or supernatant off of dewatering equipment is recycled back to the front of the system. This can cause an overload of NH3 and Phosphate and make it harder to meet nutrient removal limits.
  - The cell wall ruptures and the other bacteria feed on the dead cell's protoplasm.
  - Older, anaerobic or dead spots build up in the floc making it settle too fast.
  - This can result in shearing of the floc, since the floc structure is now weaker.
- The older, smaller pin floc, which have very little charge go over the weirs of the secondary clarifier as "pin floc"/turbidity (floc particles of less than 1/32 inch in size).

To help ensure your system does not have dead spots you can change flow patterns waste more often or increase mixing. Sometimes additions of chemicals such as sodium nitrate are used where mechanical mixing is not possible. This will chemically prevent the formation of some sulfur compounds and biologically give the bacteria an alternate oxygen source, thus alleviating some of the odor causing problems. Remember bacteria will first go for free oxygen, then nitrates, then sulfates. If there is no oxygen, addition of nitrate is a safe alternative that can help avoid some odor problems. However, keep permit limits for Nitrate in mind, if this treatment option is utilized.

Source for this newsletter: Environmental Leverage

**Odor control** is a big problem for many plants in the summer. Due to the increase in biological activity, more oxygen is required. Many times there are dead spots in a system or plant, such as corners, primary clarifiers, sludge holding tanks, scum pits, lift stations, etc. The increase in biological activity can deplete any oxygen available. Anoxic or anaerobic activity will then start to increase causing malodors to increase with the gases generated.

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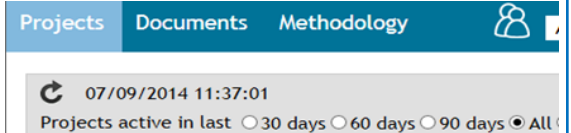
**Annual Sludge DMR's are due to TCEQ on September 1st or September 30th, depending on when your permit was issued. Check your sludge provisions in your permit for due date.**

## Coming Soon:

## A New LIMS gateway!

What is a LIMS? A Laboratory Information Management System is a software program that helps Eastex to manage your samples, organize workflow, produce reports; and provides a portal for customers to view their results online. We are in the process of implementing a new LIMS that allows us to customize projects, streamline data input, interface instruments and a lot of other geeky stuff that we are super excited about. But what we want you, our customers, to get excited about is the new online result portal!

**We look forward to sharing more details with you in our next newsletter!**



**Mystery Bug Answer: Rotifer**



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