

# Community Resources and Other News!

## Special Thank You and Farewell

On behalf of everyone at UMJA and the people we serve, we would like to share our best wishes and gratitude to Liz DeJesus as she moves on from her board seat representing Red Hill Borough. Thank you, Liz, for your dedication and contribution to our community.

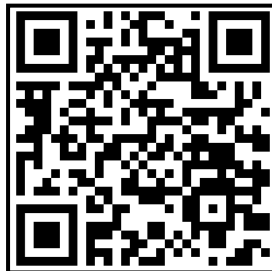
## Homeowner Lateral Repair Loans:



PENNVEST in cooperation with PHFA, provides low-cost financing to improve, replace, or repair individual on-lot sewage disposal systems or to connect, for the first time, to public sewer in order to meet public health and environmental safety standards.

To learn more about this financing, point your smart phone camera at the code above, and follow the link that pops up.

## Sewer System Care and Tips:



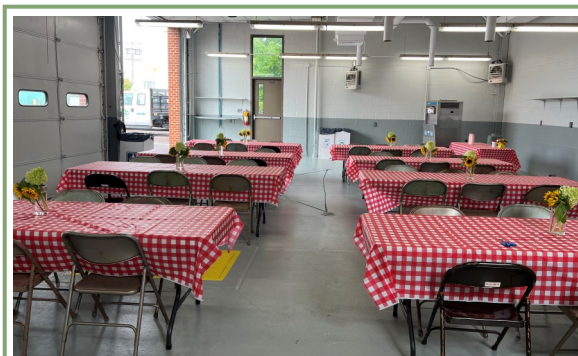
We have access to several resources on our website so you can learn more about taking care of your sewer system. Backups, clogs, and other issues can often be avoided with awareness and effort. Remember, we're just a phone call or visit away!

To read more about sewer care and tips, point your smart phone camera at the code above, and follow the link.

## What we've been up to:



In August, the UMJA staff hosted a tour for the Schuylkill Action Network Team!



In July, we hosted an open house for the three boroughs that we serve: Red Hill, East Greenville and Pennsburg



Earlier in Spring, UMJA staff participated in the annual Perkiomen Watershed Stream Cleanup.



FALL 2023

# FALL NEWSLETTER

UPPER MONTGOMERY JOINT AUTHORITY



## UMJA Fertile Fuel: Natural Organic Fertilizer



At Upper Montgomery Joint Authority, reuse and recycle is a key goal in the process of treating the wastewater that comes into this plant. One way we accomplish this is to reuse the biosolids our plant creates.

The biosolids start from the solids removed in the activated sludge process, explained further in the Operator's Section. The sludge enters the Digesters, and the process of creating Class A and Class B Biosolids can begin. Class A biosolids are produced by using our Fenton dryer, which removes 90% of the moisture present. This allows for the bacteria and other pathogenic bugs to be killed off, creating a safe nutrient rich fertilizer.

These Class A Biosolids contain plenty of Phosphorus and Nitrogen that the soil needs to grow crops, flowers, and other plants. It is safe to use in vegetable gardens and flower beds, and really allows the plants to thrive.

Natural organic fertilizers are exciting because of their diversity and flexibility. It is the original slow-release fertilizer that many synthetics strive to mimic. One of the most prevalent uses for our Biosolids are farmers using bulk loads on their lands.

We have one farmer specifically who uses the Biosolids to grow the most beautiful flowers, which he turns into stunning wreaths. Recently, we entered one of his wreaths into a Biosolids Beauty Contest, taking 2nd place.

**Interested in learning more about Upper Montgomery Joint Authority's biosolid use and natural organic fertilizer?**

**Visit our website at [www.umja.org/bio-solids](http://www.umja.org/bio-solids)**



## Director's Message

### BEFORE AND AFTER REHABILITATION



#### Continuing Manhole Rehabilitation:

Manholes often vary in age, construction and deterioration. OBIC is designed to be flexible enough to withstand the demands of the host structure. Specifically, OBIC's manhole rehabilitation products are designed to extend the life of the manhole by 50 years or longer.

Made of a flexible polymer that is environmentally friendly, OBIC coating systems are spray applied and cure in minutes. This makes them ideal for everything from manhole linings and sewer pipe coatings to potable water tank rehabilitation and transportation coatings. Additionally, unlike alternative rigid products, OBIC's flexible polymers won't crack under the pressure of temperature changes or heavy traffic.

*UMJA has 836 manholes in the collection system. To date, we have rehabilitated 125.*

### THE BIANNUAL BUG REPORT: DAPHNIA

Daphnia are a group of closely related species of planktonic crustacean, commonly called water fleas. There are over 100 species of Daphnia found globally in lakes and ponds. Although Daphnia is prevalent in wastewater treatment Pond and Lagoon processes, it is rare to find them in Activated Sludge processes, such as the treatment process at UMJA.

Daphnia are only 0.5mm to 5mm in size, but they play a key role in their freshwater ecosystems. As a type of filter feeder, they consume small suspended particles of algae, microbiology, and bacteria. For most of the year, Daphnia completely disappear until the Spring and Summer seasons when they go through peak density, typically following the algae blooms.

To aid in the transfer of dissolved oxygen from the water, Daphnia use an extracellular respiratory protein called hemoglobin. In low dissolved oxygen environments, they produce a higher concentration of the protein causing them to appear red in color. This makes them great indicators of low dissolved oxygen levels and water toxicity. Due to their sensitivity, Daphnia are often used in ecotoxicology testing, a way of measuring the impact on the ecosystem if possible substances were to be discharged into the environment.

When Daphnia is found in an Activated Sludge treatment process, it indicates excellent effluent. Every year, UMJA finds Daphnia thriving in their secondary clarifiers, before the effluent even reaches the final stages of the process. Since there is no dissolved oxygen introduced into the clarifiers, Daphnia appears a brilliant red.



## Operator's Corner

### CLARIFIER MAINTENANCE

Clarifier Maintenance can be a costly thing to overlook, that's why here at UMJA we have implemented a monthly service, a semi-annual service, as well as an annual service. Different designs have slightly different suggested routine maintenance. However, when it comes to Clarifiers in general there are 6 key components to keeping them running efficiently.

**The removal of condensation from the main gear housing (Monthly):** Water condenses and gathers in all clarifier drives, if not removed, this can cause the main gear and bearings to rust and fail.

**Lubrication of the gears, and in our case chain driven drives (Monthly, Semi-Annual, Annual):** All components of a Clarifier drive require lubrication, the reducers as well as the main gear and bearings all run in either grease or oil, depending on what the specs call for.

**Checking that the torque controller is working properly (Monthly):** Subtle but important, checking that the torque controller is working properly can prevent a total failure of your clarifier. If the torque alarm sounds and your shear pin shears your clarifier is dead in the water and should be repaired and returned to service immediately.

**Replacement of the reducer bearings and seals (10-20 year life expectancy):** A bad bearing or multiple bad bearings are essentially a countdown. It can cause improper shifting of your clarifiers main center column and create a domino effect. Replacement is essential. As for the seals, they are the threshold between your drives lubrication and the water you are treating. One failed seal and you now have compromised product which needs isolation.

**Chain maintenance (Monthly):** Improper lubrication can cause the drive chain to prematurely wear out, and improper tensioning and/or sprocket misalignment can cause it to come off the sprockets.

**Monitoring the strip liners:** Excessive noise or a noticeable lowering of the top of the drive, which may cause the scrapers to drag on the clarifier floor, may indicate that the strip liners need to be replaced.

Neglecting one aspect of Clarifier Maintenance has a trickle down effect. This is why it is so important to take your time, work safely and do proper routine maintenance so you can get the full potential and full life out of your equipment.

### NPDES PERMIT

The National Pollutant Discharge Elimination System Permit, otherwise known as NPDES permit, is required for all facilities that discharge into the waters of the Commonwealth of Pennsylvania. DEP (specifically the Bureau of Clean Water) issues each permit and monitors compliance with each limit set forth in the permit.



The NPDES permit specifies required sample types, minimum measurement frequencies, and effluent limitations for each parameter set forth within the permit. Each month, a minimum, maximum, weekly average, and/or monthly average of our data is sent to the DEP. At any point if the data exceeds the permit limits a fine will be issued to the facility. If concurrent failures ensue, the facility can and will be shut down.

Upper Montgomery Joint Authority prides itself on excellent treatment of the wastewater before discharging into the Green Lane Reservoir. Our NPDES permit focuses on pH, Dissolved Oxygen, Chlorine Residual, Carbonaceous Biological Oxygen Demand, Total Suspended Solids, Total Dissolved Solids, Ammonia, Total Phosphorus, Fecal Coliform, Total Copper, Dissolved Iron, and Whole Effluent Toxicity testing. Achieving results under the permit limits can be achieved through proper operation of the plant, and certain chemical additions as needed.

Maintaining our permit is not only the operators' responsibility, but everyone who works here. With the new upgrade to the plant, our effluent has been consistently below the permit limits.

### HOW A SECONDARY CLARIFIER WORKS:

UMJA's secondary clarifiers follow a process called activated sludge. The goal of a secondary clarifier is to settle the biomass to the bottom where it can be pull back out with pumps to be returned to the biological process and clear liquid flows over the V-notched weirs to the next step in the process Tertiary treatment.



**DID YOU KNOW:** UMJA is on Facebook!

We often post important updates and educational information just like this. Follow us today!