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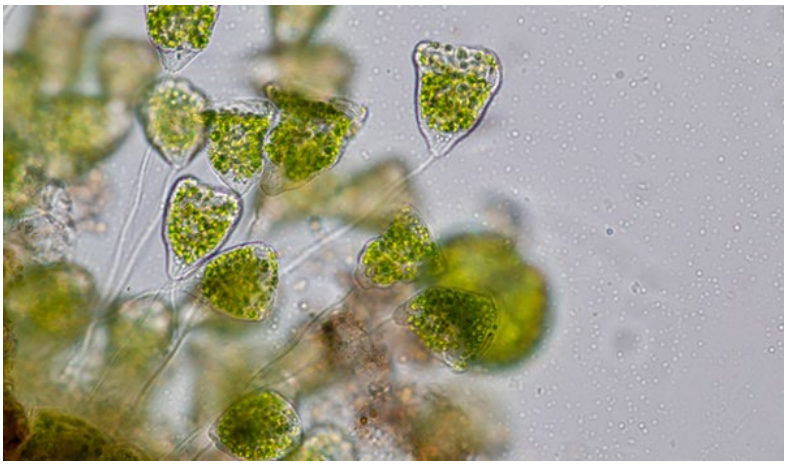
FOR IMMEDIATE RELEASE

Real SSO Prevention May be Accomplished with Soil Bacteria

A natural approach to reducing both the prevalence and severity of Sanitary System Overflows (SSOs) is right under our feet

By Anson Liski



Genus Bacillus, or soil microbes can extend the life and health of current sanitary sewer infrastructure. Combined with other trenchless rehabilitation efforts, these organic and naturally occuring "super bugs" provide an affordable and sustainable way forward for municipalities plagued by urban wet weather and other SSO event catalysts.

Whether it's hard rain and flash flooding or downhole blockages that become suppressive, sanitary sewer overflows (SSOs) are all too common nowadays.

Overflow events occur when sewer entrances and exits are both submerged, and the supply of water is greater than the total capacity of the pipes. With nowhere to go, wastewater is forced one of two ways: backwards to the point of origin or out into the environment. Neither situation is desirable, and both have serious environmental ramifications. As these problems grow more prevalent, municipalities are exploring new ways to address them.

The growing problem of SSOs events

According to the United States Environmental Protection Agency, there are as many as 23,000-75,000 SSOs per year — not counting backflow events in which wastewater flows back into buildings. The uptick in SSOs

will only grow worse over time. Underground infrastructure remains too small for current demand, and overflow events will happen more frequently as sewer systems are pushed to and beyond their limits.

Each SSO comes with significant ramifications, including damage to the environment, infrastructure, and human health. As it's pushed back to the point of origin, or overflows into spillways, untreated wastewater spreads pathogens and biohazardous materials — with potentially harmful effects for anyone exposed. Repairing infrastructure damage demands taxpayer funds, and environmental contamination manifests in additional health concerns.

Underground infrastructure is being pushed to and beyond its limits and replacing all or part of a sewer system is an enormous undertaking — with an equally enormous price tag.

Obstacles to rebuilding or replacing wastewater infrastructure

There are tremendous costs involved with re-piping sanitary sewers, and even modern trenchless rehabilitation methods aren't always sufficient for increasing sewer capacities. While current challenges represent long-term hurdles to clear, municipalities can address SSO events in the short-term by attacking buildups and blockages that stymie sanitary sewer flow — including fatbergs and other FOG-related buildups.

Buildups within sanitary sewers exacerbate an already significant strain on flow capacity. A two-foot sewer pipe with a six-inch fatberg around its internal circumference has effectively lost 75% of its capacity. And pipes with several inches of FOG buildup can experience efficiency reductions up to an order of magnitude below what

they're designed for and capable of handling. Attacking these buildups is paramount to infrastructure rehabilitation in the face of rising overflow events.

So, what can be done to mitigate SSO events and the damage they bring? Custom microbiological solutions — aka bioaugmentation — reduce FOG and other blockages to restore flow capacity in wastewater and sanitary sewer systems.

Bioaugmentation reduces SSOs

Microbiology is a natural approach to reducing both the prevalence and severity of SSOs — and extending the life of current sanitary sewer infrastructure. Combined with other trenchless rehabilitation efforts, it's a way forward for municipalities plagued by urban wet weather and other SSO event catalysts.

There's a tremendous amount of work necessary to maintain and modernize existing wastewater infrastructure. And while much of the work comes from engineering sewers with larger flow capacity, custom microbiological treatment plays an essential role in regulating sewer and wastewater treatment environments. Preventing FOG buildups, eliminating H2S — aka sewer gas — and protecting infrastructure against corrosive elements is essential to reduce the frequency of SSO events.

A Needed Shift

The use of bioaugmentation in wastewater treatment is nothing new. Changing the form of microbiology and how it is introduced into the system is now making bioaugmentation that solves collection system pain points possible and affordable. Autonomous bio dosing offers a streamlined method for accomplishing what is needed to allow soil microbiology to perform the work it was designed to do. One such technology for bio dosing is the EBS-Di from EnBiorganic Technologies. It combines the power of customized proprietary soil microbiology with autonomous delivery technology.

Measuring just 4' L x 2' W x 3' H the unit uses a patent-pending process to generate and activate customized microbiology at a rapid pace, on a massive scale just before it enters the wastewater system. The microbes are immediately ready to go to work dominating a system and delivering consistent results. Unlike traditional bioaugmentation methods and indigenous microbiology (gut bacteria), soil microbes are an efficient facultative anaerobic consortium that can perform without oxygen.

It is positioned where it can dispense these microbes into a collection system, at a level that simply overwhelms the inappropriate or problem nutrients or contaminants. It is typically placed at a lift station in the wastewater collection system at a location identified as the most advantageous location to achieve desired outcomes.

The EBS-Di does not require capital expenditure or additional operational labor/expenses by the end-user. It is provided by subscription, or through the Technology as a Service (TaaS) model. The unit is remotely controlled and monitored by the EnBiorganic technical team and serviced locally by a trained licensed service provider.

An ongoing effort

The longevity of custom bioaugmentation solutions makes them essential to sewer maintenance and rehabilitation. Continuous microbiological treatment, in sufficient quantities, removes biofilm comprised of FOG and other organic materials, and makes the sewer environment inhospitable to future buildups. Without the biofilm caused by indigenous microbiology to kickstart accumulation, sewer infrastructure faces fewer impediments to full flow capacity.

As old biofilm is removed, it does not reform and is instead replaced by a thin biofilm developed from the continuous application of specific microbiological formulations that do much more than simply remove the old, indigenous biofilm. These remarkable bacteria also replace the microbiome within wastewater treatment environments, decrease biosolid production, increase energy efficiency, and stabilize treatment processes to produce cleaner effluent that exceeds environmental impact regulations.

Beyond a reduction in SSOs and surcharge events, municipalities will find themselves with lower wastewater treatment costs, better results, and fewer barriers to wastewater treatment. Custom bioaugmentation is a sustainable strategy every municipality can adopt today for benefits now — and in the long term.

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High-resolution images to accompany this article may be accessed and downloaded at:
https://drive.google.com/drive/folders/1jES1yUye7LSW71NvA8um_CZfXT39uZ68?usp=sharing

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EnBiorganic Technologies, founded in 2019, bridges science and technology to contribute to a living planet. We believe in synergy—various parts working together to produce an enhanced result. We are driven to build innovative solutions based on a foundation of solid science. Our team is focused on solving big issues that will have a significant impact in our backyard and beyond. Our current breakthroughs in wastewater solutions, HAB mediation and animal agriculture create value for our clients, while protecting the planet's most valuable resources. Learn more at: https://enbiorganic.com.