



May 27, 2022 Back River Wastewater Treatment Plant Update

What You Need to Know

Treatment Plant Overview:

One of the primary concerns continues to be the **processing and management of biosolids** along with the removal of solids from process equipment. The high amount of solids **have led to effluent violation due to the high total suspended solids (TSS) concentration**. Sludge is now being sent to the Quarantine Road Landfill, which has opened up a new source of disposal.

Primary Treatment:

- Primary Settling Tanks (PSTs)
 - Currently only two of the 11 PSTs are functioning. The Maryland Environmental Service (MES) has cleaned PST #7 and Baltimore City has issued contracts to clean five of the PSTs.
 - After cleaning, four of the PSTs will require various mechanical and equipment repairs.

Secondary Treatment:

- Biological Treatment Activated Sludge
 - Newly constructed Activated Sludge Plant #4 is now online. This will allow Baltimore City to take Activated Sludge Plant #3 offline in order to remove sludge and make repairs to non-functioning blowers and mixers.
Once completed, this project will improve nitrogen removal and lower solids concentrations in the biological reactors.
- Secondary Clarifiers
 - There are 36 secondary clarifiers and 12 are associated with Activated Sludge Plant #4.
 - A third-party engineering assessment determined that the return activated sludge (RAS) pumps and wasting pumps **require replacement**.
 - RAS pump failure would cause poor performance of the biological reactors and wasting pump failure would prevent the wasting of sludge, which would cause a buildup of solids in the treatment system.
 - MES stated that some of the RAS and sludge pumps were evaluated and repaired in the Activated Sludge Plant #3, and two other pumps are on order.
- **Tertiary Treatment:**
 - Denitrification Filters (DNFs)
 - **Back River is experiencing problems with the DNFs due to the problems with solids.**



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- The solids are clogging the filter media causing many of the filters to not function properly or not function at all.
- In addition, there are mechanical and control system problems that **have to be repaired**.
- Baltimore City has engaged ProStart Inc. to manage and operate the DNF system.
- MES has performed an evaluation of malfunctioning level transducers and control units; there are plans for more comprehensive evaluations of the DNF system once equipment needs are confirmed.
 - Once completed, the filters can be backwashed frequently to remove the solids.
- Sand Filters
 - The treatment system has 15 functioning sand filters and the remaining **33 are not functioning due to various equipment failures, insufficient sand, and mechanical issues**.
 - MES is in the process of evaluating the sand filters and their mechanics are replacing and repairing components.
 - There are 10 pumps for the sand filters on order.
- **Final Effluent:**
 - **The analytical data has shown that there has been some progress made in getting the Back River WWTP into compliance with the discharge permit.**
 - The TSS concentration has been a factor in creating high nutrient concentrations.
 - Data from April and May show that the average TSS concentration at discharge point Outfall 001 is 9 mg/L compared to 21 mg/L for January and 17.5 mg/L for February and 14.2 mg/L for March.
 - **The data indicates progress towards the goal of removing the clogging solids from the treatment system**